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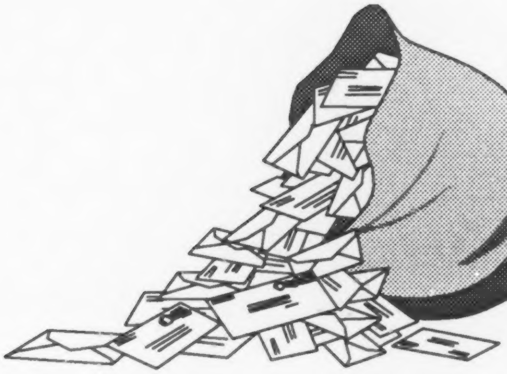
PROFILES OF ECOLOGISTS:

Results of a Survey
of the
Membership
of the
Ecological Society of America



15 December 1992

ACKNOWLEDGEMENTS

Many individuals deserve recognition for their efforts in making this volume a success. Two years ago members of the Ecological Society of America (ESA)'s Public Affairs Committee recognized the need for greater understanding of the ecological community, and agreed to work to secure funds to support a comprehensive survey of the ESA membership. Funding was secured in 1991 by members of the Committee and staff of the Public Affairs Office to design and develop a survey instrument, and to hire appropriate data entry and statistical analysis personnel. It was with the support and encouragement of ESA's Public Affairs and Executive Committee members that this survey was conducted, and the results analyzed during the first half of 1992.

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15 December 1992

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PROFILES OF ECOLOGISTS:
Results of a survey of the membership of the Ecological Society of America[1]

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EXECUTIVE SUMMARY

The Ecological Society of America (ESA), founded in 1915, is the major scientific society for ecologists in the United States, with approximately 6,800 members. At the request of leaders in the ecological community, the Society's Public Affairs Office conducted a survey of the membership to try to understand better the current demographics. The results from this human resources survey of ecologists can provide direction to ecologists, other scientists, federal and state agencies, educators, and research institutions for setting goals and designing programs over the next decade.

Fifty-six percent of the ESA membership responded to the 1992 survey. A typical respondent to the survey is a caucasian male, married with at least one child and falls between the ages of 36 and 40. The percentage of women among the older age groups is fairly low, however, the disparity between the number of male and female respondents decreases with younger age groups. Minorities are underrepresented among the respondents when compared to the demographics of the population of the United States. Individually, respondents typically make $40-$50,000. Male respondents tend to make $5-$6,000 more per year than females, even when age and time since receiving highest degree are considered. The median household income for respondents is $50-$60,000.

Education was an important factor in stimulating respondents' initial interest in ecology. Nearly 60% became interested in ecology before college, but 30% became interested as undergraduates. College professors (32%), parents (17%), and growing up in rural environments (12%) were the primary influences that encouraged respondents to become involved in ecology.

Biology was the most common major of respondents at the bachelors (48%) and masters (16%) levels. Zoology, in which 14% of the respondents majored at the masters level, was the most common major at the doctoral level (16%). Most respondents (28%) received their highest degree from biology departments, followed by zoology (19%), botany (14%) and ecology (10%) departments.

The majority of respondents relied on their families (45%) or themselves (31%) for financial support during their undergraduate years. Teaching and research assistantships, however, were the primary sources of financial support during the course of their graduate study. Forty-six percent of the respondents primarily depended on teaching assistantships at the masters level, 23% on research

assistantships. At the Ph.D. level the percentages were 39% and 29%, respectively. Financial support was critical for respondents both in beginning and continuing graduate studies. Thirty-six percent entered career-track positions immediately after receiving the Ph.D. while 32% accepted postdoctoral appointments.

During the last two years, the National Science Foundation has been the biggest single supporter of the respondents' ecological research, both in the number of grants overall (525) and in the number of grants greater than $100,000 (282). Universities were second overall with 434 grants and state agencies third with 381, although the size of the grants from those sources generally was less than $25,000 from universities and $50,000 from state agencies. Looking across all funding sources, most awards fall in the range of $5,000-$24,999.

The field in which the most grants have been awarded to respondents during the last two years is population biology, with 269 requests funded. Community ecology is second with 239 grants funded and aquatic ecology third with 210 grants funded. Ecosystems studies received the most grants above $250,000 (66 awards). Population biology received the most in the $100,000-$250,000 range (46 awards) and the most in the $5,000-$24,999 range (65 awards).

It is difficult to determine how much funding is going into the three areas (global change, biological diversity and sustainable ecosystems) singled out as research priorities in the ESA's report, **The Sustainable Biosphere Initiative: an ecological research agenda** (Lubchenco et al. 1991). Three factors may contribute to this difficulty: 1) the Sustainable Biosphere Initiative (SBI) is new enough that respondents have not begun to think of their research in terms of the priority areas which it presents; 2) federal agencies have not yet developed programs to fund research in the specific categories of SBI; and 3) each of the SBI priority areas is interdisciplinary, and thus many research areas listed in Table 54 contribute to a general understanding of the SBI priorities.

Most of the respondents are employed at universities (other than medical schools) and four-year colleges (61% combined). The second largest employment category is civilian employees of a national government (12%). The 50% of respondents employed at the university level represent an increased percentage over the 36% employed at universities prior to 1951. This study shows that higher percentages

of respondents were employed in the military or as secondary or elementary school teachers in previous decades, whereas the percentage employed at consulting firms or research centers/institutes has increased. The primary work activities among respondents are basic research (31%), teaching (28%) and applied research (15%).

1. INTRODUCTION

The Ecological Society of America, founded in 1915, is the major scientific society for ecologists in the United States and has approximately 6,800 members[2]. During the last 36 months, members of the Ecological Society of America (ESA) have carefully considered future research directions in the field of ecology. The results of this evaluation were published in ESA's report, **The Sustainable Biosphere Initiative: an ecological research agenda** (SBI) (Lubchenco et al. 1991). The report came as a response to the challenge posed by Dr. Frank Press, President of the National Academy of Sciences, that scientists set their own research priorities. In formulating the SBI, ESA members made difficult judgements concerning the research directions that hold the greatest promise for both advancing the base of ecological knowledge and for improving the human condition.

The SBI report identified the potential lack of qualified scientists and technicians as a major concern in ensuring that essential basic and applied ecological research can be undertaken (Lubchenco et al. 1991). This research is of primary importance in addressing current environmental issues. Until now, neither the scientific nor the policy-making communities have known the demographics of trained ecologists in the United States or elsewhere. Prior to the present report, there was no document identifying the number of ecologists employed and their areas of specialization. As environmental concerns such as global change, sustainability, and biodiversity become more prominent within the global environmental agenda, it is important to ask who will address and research these issues? It is prudent that we begin now to confront the challenges that will face science and society in the future. Educators, government agencies and research institutions need to know what training is required for the next generation of scientists.

At the request of leaders in the ecological community, the ESA Public Affairs Office conducted a survey of all ESA members to understand better the current demographics of ecologists. The objectives of the survey were to:

1) determine the pattern of graduate ecology degrees earned over the past 30 years;

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[2] As of 6 October 1992 the society had 6,838 members.

2) determine ethnicity and gender composition in the field of ecologists for comparison with the demographic composition of the work force as a whole;

3) catalog the nation's environmental science capabilities according to problem area (e.g., how many scientists are trained to study the ecological complexity of global change?);

4) analyze current employment patterns of ecologists.

There are numerous benefits to such a survey. The results from the Profiles of Ecologists survey provide direction to ecologists, other scientists, federal and state agencies, educators, and research institutions in setting goals and designing programs over the next decade. More specifically, the survey should have the following benefits:

1) determining research trends within the ecological community is critical for predicting the composition of the field in the coming decades. The information from the survey helps predict changes in research capabilities within the field of ecology. Scientists, educators, government agencies and research institutions all benefit from knowing which areas have adequate numbers of trained researchers;

2) the ethnic and gender composition of ecologists is compared to the work force as a whole, thus giving scientists, policy-makers, and educators a demographic picture of scientists involved in ecology. As society, through federal agencies and other institutions, continues its efforts to involve more women and minorities in the sciences, the survey provides a clear picture of where recruitment needs are most acute;

3) cataloging environmental science capabilities by "problem area" provides invaluable information to scientists, policy-makers and educators. Understanding the human resources, e.g. the collective national "brain power" in each problem area, is the critical first step in addressing concerns such as global change and diminishing biodiversity. As it stands, neither the public nor the scientific community knows how many ecologists are trained in each area. Such information can help set educational and federal funding priorities to close human resource gaps BEFORE they become acute problems;

4) employment patterns provide information about where basic and applied ecological research is centered. The survey helps determine how many ecologists are employed in academia, government, private consulting firms, environmental organizations, and private foundations. Again, this information is critical in determining where ecologists are, the kind of research each is undertaking, and the population that ultimately benefits from that research.

Chapter two of this report describes the development of this survey and discusses the response rate from the membership, analytical procedures used, and storage of the raw data. Chapters three through six report on the results of the survey. Chapter three describes the demographic characteristics of the respondents, followed by the educational background of the respondents in chapter four, the environmental science capabilities in chapter five, and current employment patterns in chapter six. The results of this survey are compared to other studies in chapter seven. A discussion of some of the findings is given in chapter eight, with conclusions and recommendations offered in chapter nine.

2. DEVELOPMENT AND DESCRIPTION OF THIS SURVEY

In 1987 the Ecological Society of America undertook a survey of its members to learn about member satisfaction with the Society and to determine possible future directions. All 3,089 responses received in 1987, representing approximately 50% participation, were tabulated by members of the ESA Membership Committee, and are now housed in the ESA archives at the University of Georgia (Travis 1989). The questionnaire from 1987 was used as a model for the current survey. However, the many fill-in-the-blank and essay questions of the 1987 survey were difficult to tabulate. Therefore, the 1987 survey was modified in 1992 to make data entry more convenient and to include other issues not addressed by the previous survey. Information from the two surveys has been compared where possible to attempt to discern trends in the field of ecology. However, not many questions were directly comparable due to the different formats of the 1987 and 1992 surveys (see Appendices A and B).

During late 1988, the American Geological Institute (AGI) published a report entitled **North American Survey of Geoscientists** (Claudy et al. 1988). This report inspired members of ESA's Public Affairs Committee to consider seriously ways to survey ESA members on a regular basis. A suggestion was made to the ESA Executive Committee that the ESA Public Affairs Office secure funds to allow the Society to resurvey the membership in a timely fashion. Nick Claudy of the American Geological Institute reviewed and commented on various drafts of the 1992 ESA survey instrument. His willingness to share his experiences with the AGI report has been very helpful in the success of the current ESA survey.

In June 1991, Dr. Ronald Pulliam, President-elect of the Ecological Society of America, appointed an ad hoc advisory committee to work with ESA's Public Affairs Office to design a survey instrument. The ad hoc committee met during the Society's Annual Meeting in San Antonio, Texas, to review a draft human resources questionnaire. The group decided to solicit input from a larger "pre-test" sample of ESA members prior to mailing the survey to the entire membership. Thus, a draft survey was mailed to 100 members (including all members of the ESA Council, Executive Committee, and Public Affairs Committee) for their review and comment in October and November 1991. The comments were compiled and reviewed by the ad hoc committee during their second meeting in January 1992. The survey instrument was reviewed again by members of the ESA Executive and Public Affairs Committees before the format was finalized.

The final survey instrument (which can be found in Appendix A) was mailed to the entire ESA membership in March 1992, responses were mailed back in April and May, and all responses were tabulated by 30 June 1992. As of 30 June 1992, the total number of surveys returned and entered into the database equalled 3,695. This represented 56% of the 6,551 members of the society at the time the survey was mailed.

Statistical analyses commenced in June 1992, using Systat 5.0 to tabulate the results from most questions. Paradox 3.5 was used to create summary datasets and to tabulate the results from more complex questions (such as question 34 in the survey dealing with the nature of grant applications by ESA members). The data from the survey are stored in Paradox files and copies of the dataset can be obtained from the ESA's Public Affairs Office or from the ESA archives at the University of Georgia (complete addresses are provided on Page ii).

3. DEMOGRAPHIC CHARACTERISTICS

3.1 GENDER AND AGE

Most (approximately 77%) of the survey respondents are male (Table 1). The respondents are predominantly in their late 30's (Table 2), a pattern that holds for both males and females (Table 3 and Figure 1). Seventy percent of the respondents report being 45 years old or less (Table 2).

Table 1. Gender of respondents.

Gender	Number of respondents	Percentage of total
Male	2,802	76.7
Female	853	23.3
Total	3,655	100.0

Table 3 shows the number and percentage of males and females in each age group as well as the percentage of both males and females within each age group. The results indicate that the disparity between the number of males and females in the membership is decreasing in the younger age groups (i.e., the percentage of both males and females within the youngest age group is approaching 50%). Sixty-six percent of female respondents are less than or equal to 40 years of age, while only 46% of male respondents are in this age category.

The age distribution may indicate that most people join the society during later stages of their education (i.e., in later stages of their graduate education or early in their postgraduate careers), or the peak of respondents in their late 30's may represent the crest of the "baby boom" generation, or both. If this trend appears in surveys of other scientific societies, it may be a symptom of recruitment issues in science that need to be addressed.

Table 2. Number and percentage of respondents within each age group.

Age group	Number of respondents	Percentage of total
96-100	1	0.0
91-95	1	0.0
86-90	1	0.0
81-85	13	0.4
76-80	17	0.5
71-75	33	0.9
66-70	56	1.5
61-65	104	2.9
56-60	157	4.3
51-55	256	7.0
46-50	489	13.4
41-45	682	18.8
36-40	852	23.4
31-35	623	17.1
26-30	287	7.9
21-25	64	1.8
Total	3,636	100.0

Table 3. Number and percentage of male and female respondents within each age group and, for each age group, percentage of either males or females.

Age group	Number of males in age group	Percent of males in age group	Number of females in age group	Percent of females in age group	Percent of age group who are male	Percent of age group who are female
96-100	1	0.0	0	0.0	100.0	0.0
91-95	0	0.0	1	0.1	0.0	100.0
86-90	1	0.0	0	0.0	100.0	0.0
81-85	13	0.5	0	0.0	100.0	0.0
76-80	15	0.5	2	0.2	88.2	11.8
71-75	32	1.1	1	0.1	97.0	3.0
66-70	50	1.8	6	0.7	89.3	10.7
61-65	94	3.4	10	1.2	90.4	9.6
56-60	141	5.1	16	1.9	89.8	10.2
51-55	235	8.4	21	2.5	91.8	8.2
46-50	399	14.3	90	10.6	81.6	18.4
41-45	541	19.4	141	16.7	79.3	20.7
36-40	610	21.9	242	28.6	71.6	28.4
31-35	432	15.5	191	22.6	69.3	30.7
26-30	189	6.8	98	11.6	65.9	34.1
21-25	37	1.3	27	3.2	57.8	42.2
Total	2,790	100.0	846	100.0	76.7	23.3

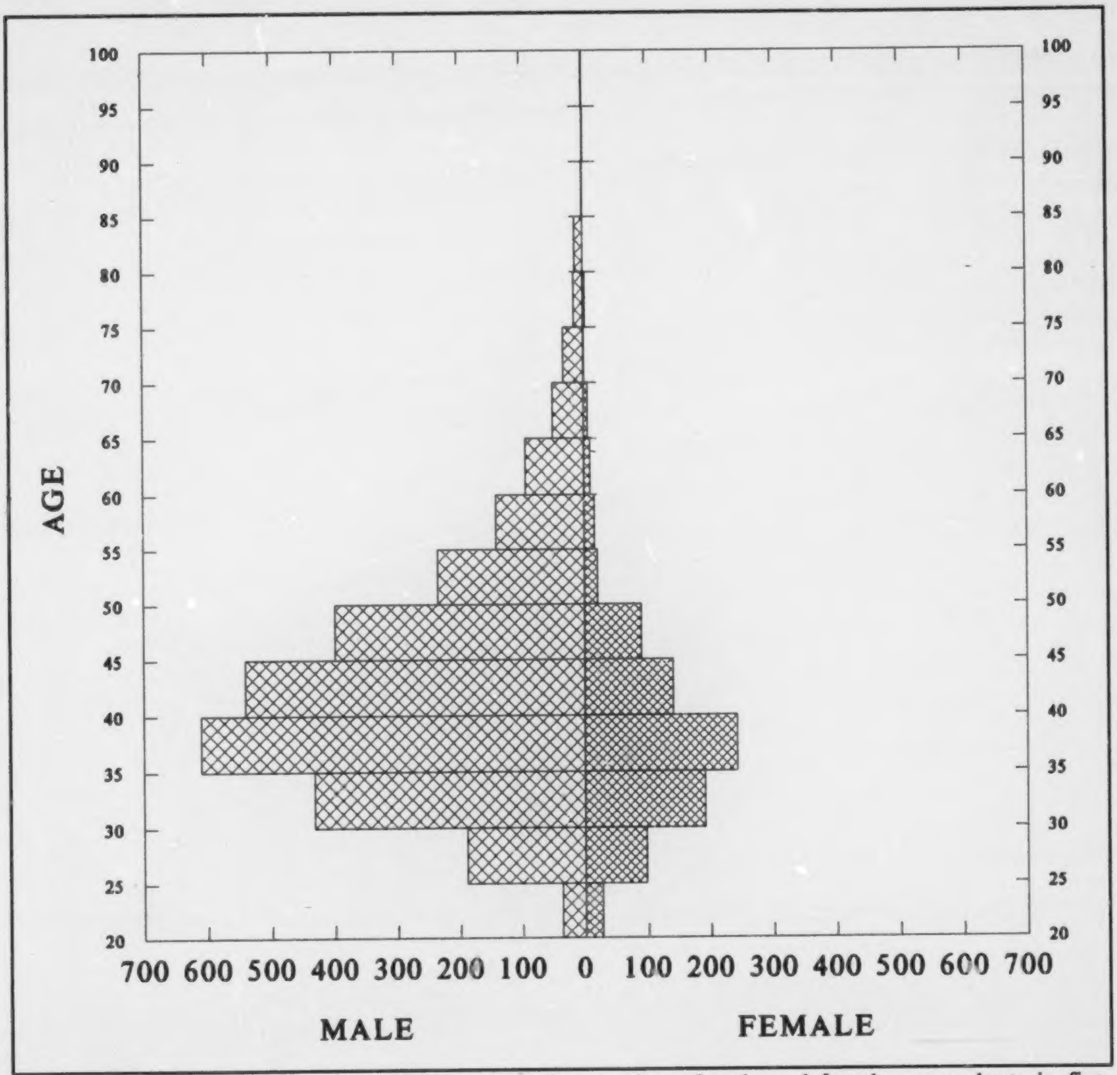

Figure 1. Age-sex pyramid of respondents, revealing number of male and female respondents in five-year age classes.

3.2 CITIZENSHIP AND ETHNICITY

Table 4 shows the citizenship categories of respondents. The respondents are primarily United States citizens, both native born (88%) and naturalized (2%). Canadian citizens, at 3%, form the second largest group of ESA members. Respondents in the "other" category include citizens of Australia, Brazil, Chile, France, Norway, Sweden, and the United Kingdom (Figure 2).

Table 4. Citizenship of respondents.

Citizenship	Number of respondents	Percentage of total
U.S., native born	3,236	88.2
U.S., naturalized	76	2.1
Non U.S., permanent U.S. resident	42	1.1
Non U.S., temporary U.S. resident	36	1.0
Canada	113	3.1
Mexico	24	0.7
Other	140	3.8
Total	3,667	100.0

The respondents are 93% Caucasian, 2% Asian/Pacific Islander, and 2% Hispanic (Table 5). Minorities, especially those of African descent (0.3% of the respondents), are highly underrepresented compared to the United States population as a whole, where African Americans represent 12% of the population (U.S. Bureau of the Census 1991).

Table 5. Ethnic origin/racial background of respondents.

Race/ethnic origin	Number of respondents	Percentage of total
Caucasian	3,393	93.1
Asian/Pacific Islander	89	2.4
Hispanic	76	2.1
Native American	41	1.1
African American	12	0.3
Other	32	0.9
Total	3,643	100.0

3.3 MARRIAGE AND FAMILIES

Seventy-three percent of the respondents are married (Table 6). More than half (55%) report having children (Table 7). Forty-three percent of the respondents report having only one or two children.

Table 6. Marital status of respondents.

Marital status	Number of respondents	Percentage of total
Married	2,650	73.1
Single	977	26.9
Total	3,627	100.0

Table 7. Number of children of respondents.

Number of children	Number of respondents	Percentage of total
None	1,640	45.0
One	590	16.2
Two	963	26.4
Three	324	8.9
More than three	126	3.5
Total	3,643	100.0

3.4 LOCATION OF EMPLOYER

The primary employers of the vast majority (96%) of the respondents are located in North America (Table 8), which includes the United States and its territories (Puerto Rico, U.S. Virgin Islands, and Guam), Canada and Mexico. The region with the next highest concentration of respondents is Europe (Austria, Belgium, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Norway, Spain, Sweden, Switzerland and the United Kingdom) with 2% of the respondents.

Table 8. Regions of the world in which respondents' primary employers are located.

Region	Number of respondents	Percentage of total
North America	3,429	95.6
Europe	64	1.8
Pacific	39	1.1
Central and South America	26	0.7
Asia	25	0.7
Middle East	4	0.1
Africa	1	0.0
Total	3,588	100.0

A world map showing the countries in which respondents are located is given in Figure 2. Australia, New Zealand and the Philippines are included in the Pacific region, in which 1% of the respondents are located. The Central and South American region (1% of the respondents) includes Argentina, Brazil, Chile, Colombia, Ecuador, Nicaragua, Panama and Venezuela. The Asian region (also 1% of the respondents) is comprised of Hong Kong, India, Indonesia, Japan, Korea, Singapore, and Taiwan. Only five respondents reside in the Middle East (Israel) or Africa (Egypt).

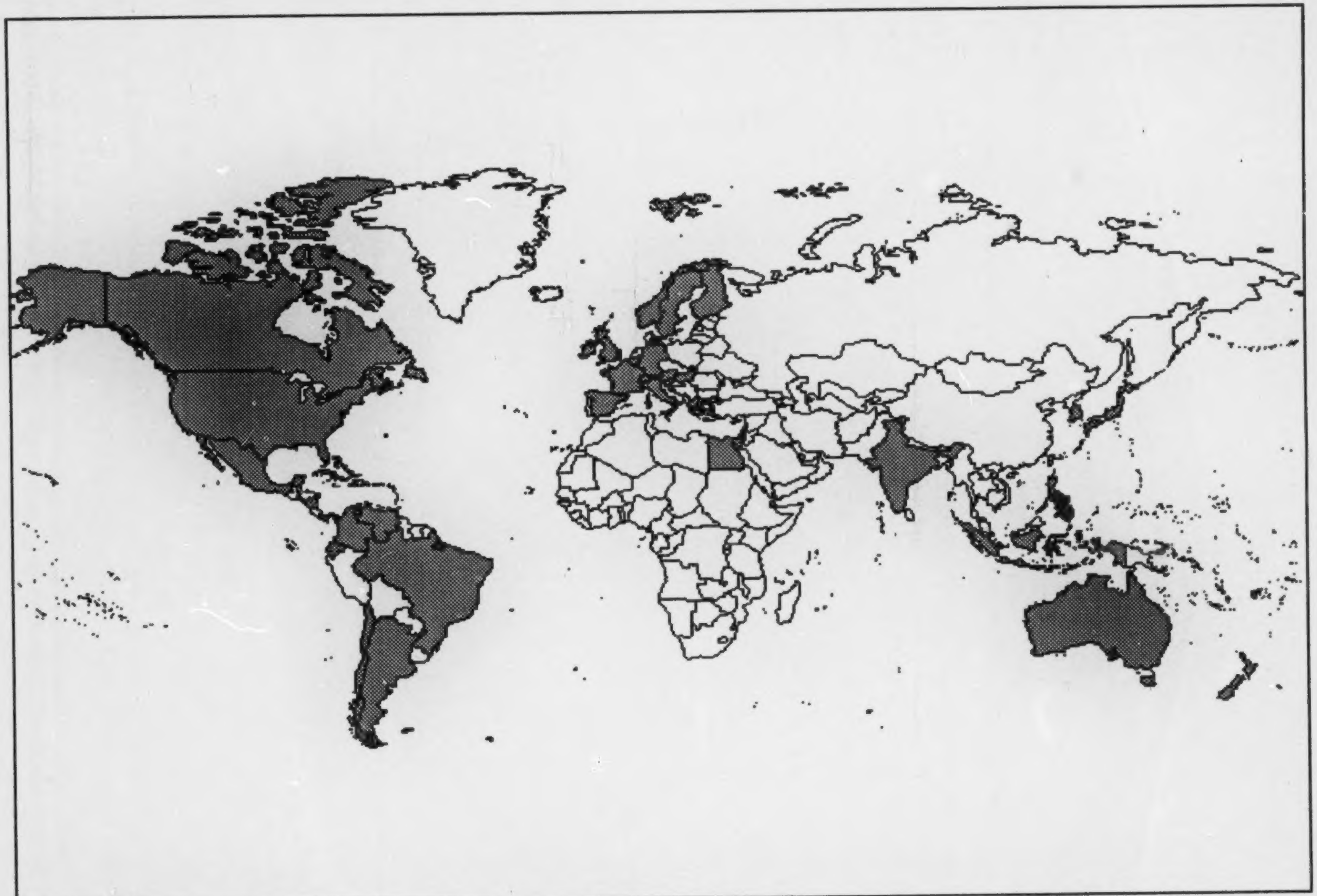

Figure 2. World map showing the countries (shaded) in which respondents are located. Base map Copyright © 1992 PC Globe, Inc.

Most North American respondents' employers are located in the United States. A map showing the distribution of the U.S. Census Divisions and the number of respondents residing in each is given in Figure 3. Twenty-one percent of the respondents work in the Pacific Census Division, comprised of Alaska, California, Hawaii, Nevada, Oregon and Washington (U.S. Bureau of the Census 1991; Table 9). The second highest percentage of respondents' employers are in the South Atlantic Census Division (19%), which contains Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia and West Virginia. Four percent of respondents reside in Canada, and 1% each in Mexico and the U.S. Territories.

Table 9. Regions of North America in which respondents' primary employers are located. U.S. Bureau of the Census divisions are used for the United States.

Region	Number of respondents	Percentage of total
Pacific U.S.	721	21.0
South Atlantic U.S.	664	19.4
Mountain U.S.	408	11.9
East North Central U.S.	388	11.3
Middle Atlantic U.S.	333	9.7
West North Central U.S.	225	6.7
New England U.S.	205	6.0
West South Central U.S.	169	4.9
East South Central U.S.	145	4.2
Canada	121	3.5
Mexico	28	0.8
U.S. Territories	22	0.6
Total	3,429	100.0

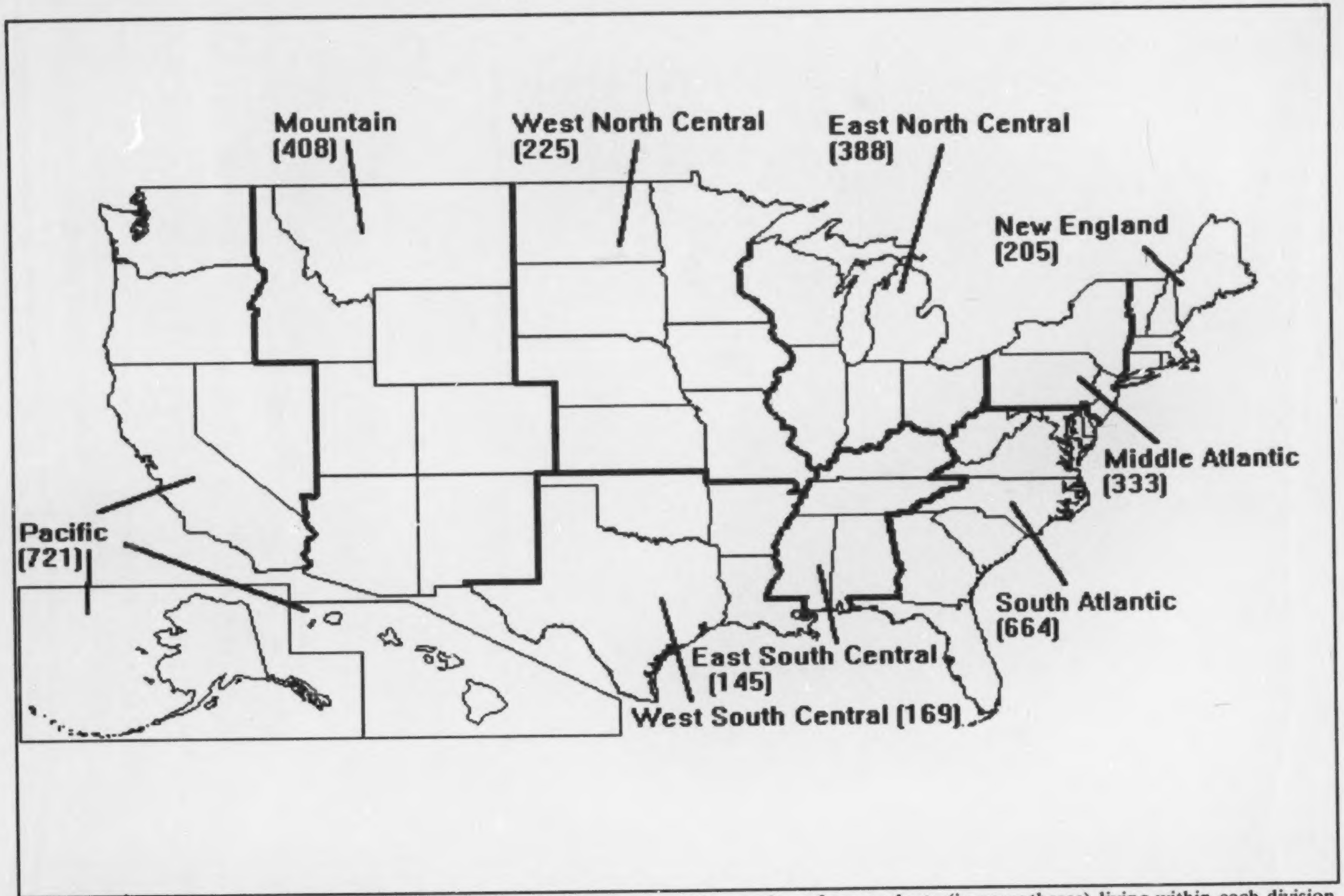
Mountain
[408]
West North Central
[225]
East North Central
[388]
New England
[205]
Middle Atlantic
[333]
South Atlantic
[664]
East South Central
[145]
West South Central [169]
Pacific
[721]

Figure 3. Map showing the boundaries of the U.S. Census Divisions and the number of respondents (in parentheses) living within each division. Base map Copyright © 1990 PC Globe, Inc.

Most (45%) of the respondents' employers are located in an area which they classify as urban metropolitan (Table 10). Thirty-one percent are located in suburban areas, while 24% are located in rural areas.

Table 10. Type of community in which respondents' primary employers are located.

Region	Number of respondents	Percentage of total
Urban metropolitan	1,619	45.2
Suburban	1,106	30.9
Rural	854	23.9
Total	3,579	100.0

3.5 INCOME

The median gross annual income of individual respondents is between 40 and 50 thousand dollars (Table 11). Nearly 50% of female respondents make less than $30,000 while only 26% of male respondents are in this category (Table 12, Figure 4). A disproportionally high percentage of females occupies the lower brackets in gross annual income (i.e., greater than 35% of respondents who make less than $30,000 are female compared with 24% of respondents to the income question). Likewise, a disproportionally low percentage of females occupies the higher income brackets (above $40,000). These trends, however, somewhat parallel the age/sex distribution of the membership (Figure 1) and may reflect the number of women at early stages in their professional development.

Table 11. Gross annual individual income of respondents in 1991, including royalties and consulting fees (U.S. dollars).

Gross annual income	Number of respondents	Percentage of total
Below $10,000	245	6.8
$10,000 - $19,999	458	12.7
$20,000 - $29,999	422	11.7
$30,000 - $39,999	626	17.3
$40,000 - $49,999	665	18.4
$50,000 - $59,999	477	13.2
$60,000 - $69,999	290	8.0
$70,000 - $79,999	160	4.4
$80,000 - $89,999	113	3.1
$90,000 - $99,999	66	1.8
$100,000 - $124,999	55	1.5
$125,000 - $149,999	23	0.6
$150,000 - $174,999	5	0.1
$175,000 and above	9	0.2
Total	3,614	100.0

Table 12. Number of males and females within each gross annual income bracket (individual income in U.S. dollars) and percentage of each bracket comprised of either males or females.

Gross annual income	Number of males	Percent male	Number of females	Percent female	Percent of respondents who are male	Percent of respondents who are female
Below $10,000	138	5.0	106	12.6	56.6	43.4
$10,000 - $19,999	290	10.6	163	19.4	64.0	36.0
$20,000 - $29,999	272	9.9	149	17.7	64.6	35.4
$30,000 - $39,999	465	16.9	156	18.5	74.9	25.1
$40,000 - $49,999	540	19.7	122	14.5	81.6	18.4
$50,000 - $59,999	394	14.3	80	9.5	83.1	16.9
$60,000 - $69,999	254	9.2	35	4.2	87.9	12.1
$70,000 - $79,999	145	5.3	14	1.7	91.2	8.8
$80,000 - $89,999	105	3.8	6	0.7	94.6	5.4
$90,000 - $99,999	58	2.1	7	0.8	89.2	10.8
$100,000 - $124,999	53	1.9	2	0.2	96.4	3.6
$125,000 - $149,999	21	0.8	1	0.1	95.5	4.5
$150,000 - $174,999	5	0.2	0	0.0	100.0	0.0
$175,000 and above	8	0.3	1	0.1	88.9	11.1
Total	2,748	100.0	842	100.0	76.5	23.5

In order to test this hypothesis, an analysis of covariance was run on the data to compare the individual incomes of men and women while controlling for either the effect of age or time (in years) since an individual's highest degree was obtained. Students and retirees (assumed to be anyone over 75 years old) were excluded and analyses were further limited to those in occupational levels analogous to either professor, associate professor, or assistant professor status (see Table 64) so that differences in occupational level would not overly influence the analysis. Despite the limitations, more than 2,300 cases were available for analysis. The midpoints of the income ranges listed in the survey instrument were used in the analysis (except that "$175,000 and above" was assumed to be $187,500, i.e., $25,000 greater than the midpoint of the previous $25,000-wide income interval).

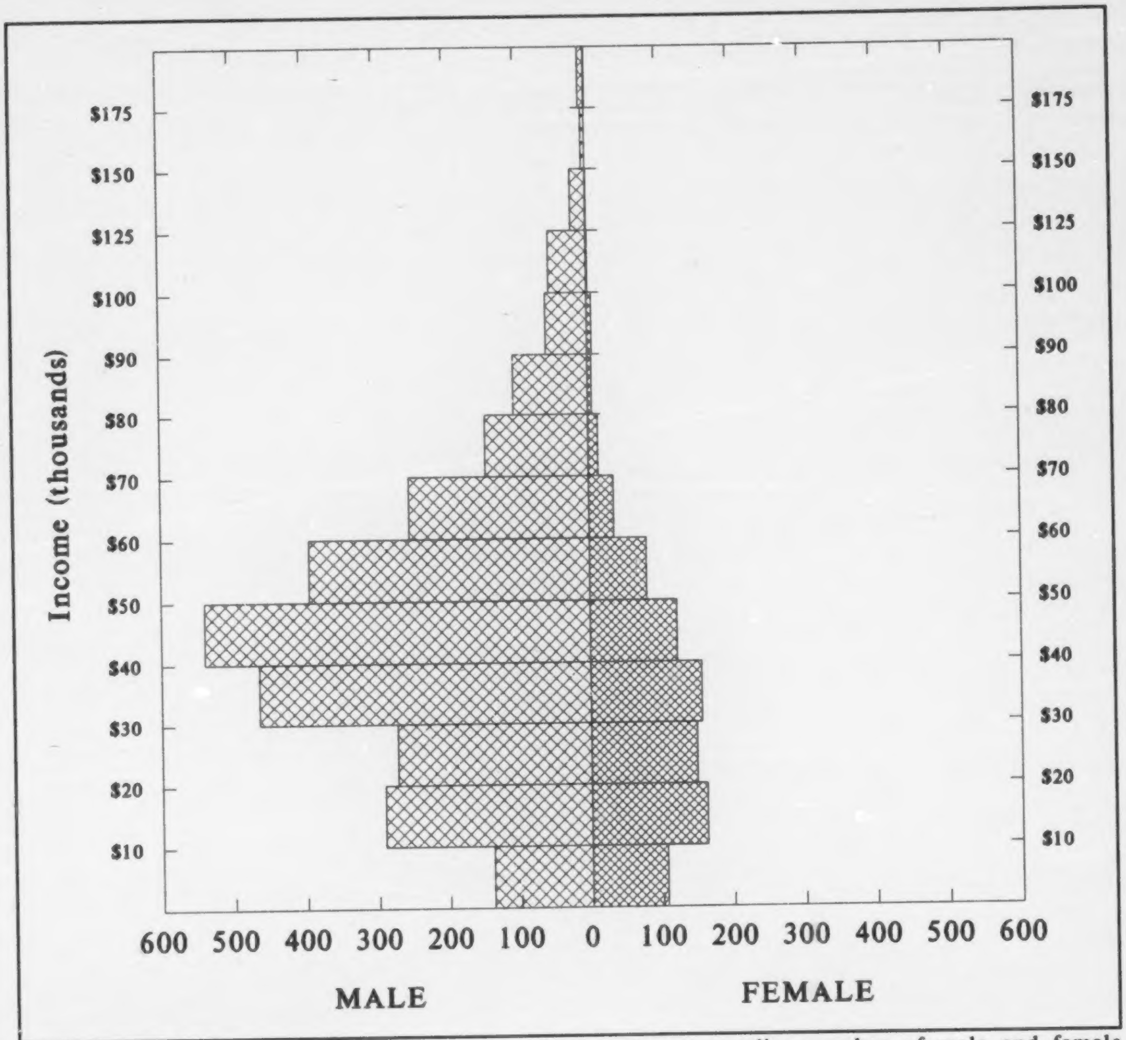

Figure 4. Individual income-gender pyramid of respondents, revealing number of male and female respondents in each income bracket.

Both covariates, age and time since highest degree, were found to be statistically significant influences of income (in both cases $p < 0.001$; Table 13). The analyses also show that, while controlling for either covariate, gender is also a statistically significant influence on income ($p < 0.001$ in both instances). To ensure the validity of the two models (age + gender and time since highest degree + gender), further tests were conducted to see if the homogeneity of slopes assumption (i.e., that there is no statistically significant interaction between age and gender or between time since highest degree and gender) required by the analysis of covariance was met. Neither interaction was significant at the $p = 0.05$ level. While neither model accounts for much of the variance in income data (24% by the age + gender model and 29% by time since highest degree + gender), they do demonstrate a statistically significant difference between the income of male and female respondents.

Table 13. Results of analysis of covariance tests of effects of gender on income while controlling for either age or time since highest degree.

TEST OF EFFECTS OF GENDER AND AGE ON INCOME

$N = 2{,}347$, $R = 0.489$, $R^2 = 0.239$

Error Source	Sum-of-squares	DF	Mean-square	F-ratio	P
Gender	1.32×10^{10}	1	1.32×10^{10}	40	< 0.001
Age	2.05×10^{11}	1	2.05×10^{11}	621	< 0.001
Error	7.72×10^{11}	2344	3.29×10^{8}		

TEST OF EFFECTS OF GENDER AND TIME SINCE HIGHEST DEGREE ON INCOME

$N = 2{,}315$, $R = 0.535$, $R^2 = 0.287$

Error Source	Sum-of-squares	DF	Mean-square	F-ratio	P
Gender	7.86×10^{9}	1	7.86×10^{9}	26	< 0.001
Time since highest degree	2.46×10^{11}	1	2.46×10^{11}	805	< 0.001
Error	7.05×10^{11}	2312	3.05×10^{8}		

Predictive equations for income, based on either the age + gender model or the time since highest degree + gender model, were developed from the subset of survey data used in the analysis of covariance. Based on survey responses, the age + gender model predicts an annual income for male respondents of $5,888 more than for same-age female respondents (Table 14). The time since highest degree + gender model also predicts a higher annual income for male respondents ($4,606 more per year) than female respondents who finished their highest degree the same year (Table 14).

Table 14. Predicted incomes for male and female respondents: a) by the age + gender model for selected ages; b) by the time since highest degree + gender model for selected time periods.

Age	Male Income	Female Income	Time since highest degree	Male income	Female Income
30	$34,012	$28,125	5	$39,460	$34,854
40	$44,656	$38,769	15	$50,751	$46,145
50	$55,301	$49,413	25	$62,042	$57,435
60	$65,945	$60,057	35	$73,332	$68,726
70	$76,589	$70,701	45	$84,623	$80,017

The median total household income of the respondents is between 50 and 60 thousand dollars (Table 15). Approximately 7% reported an individual annual income of greater than $80,000, while nearly 24% reported an annual household income greater than $80,000. At the other extreme, 20% of the individuals reported an individual annual income of less than $20,000, while 11% reported a household income less than $20,000.

Table 15. Total household income of respondents in 1991 (U.S. dollars).

Total household income	Number of respondents	Percentage of total
Below $10,000	127	3.5
$10,000 - $19,999	274	7.6
$20,000 - $29,999	292	8.1
$30,000 - $39,999	400	11.2
$40,000 - $49,999	465	13.0
$50,000 - $59,999	452	12.6
$60,000 - $69,999	371	10.4
$70,000 - $79,999	352	9.8
$80,000 - $89,999	256	7.1
$90,000 - $99,999	190	5.3
$100,000 - $124,999	250	7.1
$125,000 - $149,999	80	2.2
$150,000 - $174,999	39	1.1
$175,000 and above	33	0.0
Total	3,581	100.0

3.6 REASONS FOR MEMBERSHIP IN THE ESA

Eighty-nine percent of the respondents considered themselves ecologists as of 15 February 1992 (Table 16). The reasons individuals join the Ecological Society of America are many, but the overriding one (according to 32% of the respondents) is to receive the Society's journals (Table 17). Other reasons include a desire to network with ecological professionals (26%) and a commitment to environmental stewardship (11%). Thirty-six percent of respondents devote one or more days per year in service to the ESA (Table 18).

Table 16. Did respondents describe themselves as an ecologist on 15 February 1992?

Considered an ecologist	Number of respondents	Percentage of total
Yes	3,203	88.7
No	410	11.3
Total	3,613	100.0

Table 17. Reasons why respondents are members of the Ecological Society of America.

Reason for joining society	Number of respondents	Percentage of total
Receive ESA journals	1,183	32.4
Need for networking with ecological professionals	966	26.4
Personal commitment to environmental stewardship	397	10.9
Academic training	324	8.9
Multidisciplinary research includes collaboration with ecologists	309	8.5
Believe important advances are being made in ecology	264	7.2
Opportunity for career advancement/change	55	1.5
To stay current in the field	39	1.1
Support of the Society and ecology	35	1.0
Other	83	2.3
Total	3,655	100.0

Table 18. Number of days per year respondents devote to the ESA.

Number of days devoted to the ESA	Number of respondents	Percentage of total
None	2,299	64.1
One	421	11.7
Two to five	650	18.1
Six to ten	134	3.7
11 to 15	32	0.9
More than 15	49	1.4
Total	3,585	100.0

3.7 MEMBERSHIP IN OTHER ORGANIZATIONS

In addition to the ESA, respondents are members of a number of other organizations, primarily the American Association of the Advancement of Science and Sigma Xi (Table 19). Over 1,000 are members of the both the AAAS (1,101 respondents), and Sigma Xi (1,047 respondents). Fifty-five percent of the respondents devote one day or more per year to these other organizations (Table 20).

Table 19. Other professional societies to which 25 or more respondents belong. Respondents were allowed to give more than one response.

Professional society	Number of respondents
American Association for the Advancement of Science	1,101
Sigma Xi	1,047
American Institute of Biological Sciences	702
American Society of Naturalists	591
Society for Conservation Biology	530
American Society of Limnology & Oceanography	403
Society for the Study of Evolution	344
British Ecological Society	337
The Wildlife Society	296
American Ornithologists' Union	282
Botanical Society of America	275
American Fisheries Society	273
North American Benthological Society	262
American Society of Mammalogists	260
Society for Wetland Scientists	247
Animal Behavior Society	230
INTECOL	223
American Society of Ichthyologists and Herpetologists	205
Association for Tropical Biology	203
Organization for Tropical Studies	198
Entomological Society of America	185
American Society of Zoologists	183
Society of American Foresters	158
Estuarine Research Federation	145
International Association for Vegetation Science	141
Society for Range Management	123
The Torrey Botanical Club	119
Soil Science Society of America	104
The Herpetologists' League	100
Society for the Study of Reptiles and Amphibians	87
Society of Environmental Toxicology & Chemistry	85
American Society of Agronomy	82
American Geophysical Union	76
North American Lake Management Society	64
American Society of Plant Physiologists	56
Association of Ecosystem Research Centers	54
American Society of Microbiology	52
Phycological Society of America	45
American Water Resources Association	42
Soil & Water Conservation Society	39
Society of Systematic Biologists	38
American Society for Photogrammetry & Remote Sensing	37
American Society of Plant Taxonomists	35
Association of American Geographers	31
American Bryological & Lichenological Society	27

Table 20. Number of days per year respondents devote to other professional organizations.

Number of days devoted to other organizations	Number of respondents	Percentage of total
None	1,544	44.8
One	235	6.8
Two to five	813	23.6
Six to ten	454	13.2
11 to 15	174	5.1
More than 15	224	6.5
Total	3,444	100.0

3.8 STATE AND LOCAL GOVERNMENT INVOLVEMENT

Eighteen percent of respondents are involved with state or local governments in some capacity (Table 21). More than 120 of these said that they were involved with conservation commissions (Table 22), while 93 said that they served on environmental political action committees.

Table 21. Involvement of respondents in state or local government.

Involved in state or local government	Number of respondents	Percentage of total
Yes	666	18.4
No	2,960	81.6
Total	3,626	100.0

Table 22. Ways in which respondents are involved in state or local governments. Respondents were allowed to give more than one response to this question.

State or local government involvement	Number of respondents
Conservation commission	126
Environmental political action committee	93
Planning board	58
Regional planning commission	45
Regional watershed council	31
Zoning commission	15
Other	387
Total	755

4. EDUCATIONAL BACKGROUND

4.1 INITIAL INTEREST IN ECOLOGY

The results of the survey indicate that education, at all levels, is the most important factor in stimulating interest in ecology. Approximately 60% of the respondents became interested in ecology before college (Table 23), while 30% became interested as undergraduates. The most important influences in stimulating that interest (Table 24) were college professors (32%), followed by parents (17%). Growing up in a rural area was third at 12%, and the influence of high school teachers was fourth (8%).

Table 23. When respondents first became interested in ecology.

When respondents became interested	Number of respondents	Percentage of total
Undergraduate course	1,098	30.0
Grades K-6	851	23.3
Grades 9-12	702	19.2
Grades 7-8	319	8.7
Pre-kindergarten	295	8.1
Graduate course	193	5.3
Summer camp	60	1.6
In a job	47	1.3
As an adult	34	0.9
Other	61	1.7
Total	3,660	100.0

Table 24. Who or what was most instrumental in kindling respondents' interest in ecology.

Person or factor inspiring interest	Number of respondents	Percentage of total
College professor	1,165	32.0
Parent	626	17.2
Growing up in a rural area	453	12.4
High school teacher	300	8.2
Ecological literature	191	5.2
Scouting leader/program	148	4.1
Friend	114	3.1
Grandparent	87	2.4
Other relative	77	2.1
Elementary teacher	63	1.7
Environmental organization	60	1.6
Self motivated	57	1.6
Outdoor recreation	56	1.5
No specific influence	45	1.2
Museums, zoos	42	1.2
Reading	39	1.1
Travel/family vacations	34	0.9
TV nature shows	26	0.7
Reports on environmental problems	11	0.3
Camp/camp counselor	7	0.2
Other	43	1.2
Total	3,644	100.0

4.2 DEPARTMENTS GRANTING HIGHEST DEGREE

Twenty-eight percent of the respondents received their highest degree from biology departments (Table 25). The next highest percentage earned their degrees from zoology departments (19%), followed by botany (14%) and ecology (11%) departments.

Table 25. Departments from which respondents received their highest degree.

Department	Number of respondents	Percentage of total
Biology	1,005	27.5
Zoology	710	19.4
Botany	503	13.7
Ecology	410	11.2
Forestry	211	5.8
Wildlife/fisheries management	161	4.4
Environmental science	116	3.2
Entomology	105	2.9
Limnology/oceanography/marine science	81	2.2
Range management/science	57	1.6
Agriculture/agronomy	50	1.4
Geography	46	1.3
Non-science	32	0.9
Soil science	25	0.7
Statistics	22	0.6
Geology	18	0.6
Engineering	14	0.4
Chemistry	8	0.2
Physics	8	0.2
Genetics	8	0.2
Mathematics	7	0.2
Microbiology	7	0.2
Neurobiology/anatomy/physiology	6	0.2
Other	50	1.4
Total	3,661	100.0

4.3 UNDERGRADUATE DEGREE

The respondents' most common undergraduate major was biology (Table 26), with 1,697 (48%) reporting this as their major. Biology was followed by zoology (14%), botany (7%), and wildlife biology and forest ecology at 4% apiece.

Cornell University and the University of California at Berkeley head the list of the schools in the number of Bachelors degrees granted to respondents (Table 27). Cornell granted 95 Bachelors degrees and Berkeley 77. McGill University, with 16 degrees, and the National Autonomous University of Mexico and the University of Toronto, with 14 each, head the list for foreign schools in the number of Bachelors degrees granted to respondents (Table 28).

Most respondents relied on either their family or themselves for financial support through their undergraduate degree program (Table 29). Forty-five percent of the respondents reported that their families were their primary form of support, while 31% reported that they supported themselves through school. Other support was received from fellowships, loans, scholarships and veteran's benefits (especially in the mid to late 1940's and the late 1960's through the 1970's).

Table 26. Fields in which respondents majored for their Bachelors degree.

Major	Number of respondents	Percentage of total
Biology	1,697	47.6
Zoology	514	14.4
Botany	239	6.7
Wildlife biology	137	3.8
Forest ecology	128	3.6
Environmental/resource management	90	2.5
Chemistry	53	1.5
Fisheries biology	49	1.4
Mathematics	38	1.1
Agronomy	36	1.0
Marine ecology	33	0.9
Geography	32	0.9
Ecosystem studies	31	0.9
Entomology	31	0.9
Geology	25	0.7
Aquatic ecology	22	0.6
Conservation biology	22	0.6
Community ecology	21	0.6
Anthropology	19	0.5
English	17	0.5
History	16	0.4
Physics	16	0.4
Psychology/sociology	16	0.4
Plant ecology	15	0.4
Education	14	0.4
Engineering	14	0.4
Population biology	14	0.4
Vertebrate biology	14	0.4
Animal behavior	13	0.4
Environmental science/studies	12	0.3
Environmental education	11	0.3
Microbiology	11	0.3
Range ecology/management	10	0.3
Agroforestry	9	0.3
Oceanography	8	0.2
Social/political science, government	8	0.2
Environmental engineering	7	0.2
Religion/philosophy	7	0.2
Soil science	7	0.
Environmental policy	6	0.2
Literature	6	0.2
Art	5	0.1
Behavioral ecology	5	0.1
Biological diversity	5	0.1
Languages	5	0.1
Pharmacy/medicine	5	0.1
Other	73	2.0
Total	3,566	100.0

Table 27. Schools from which 25 or more respondents received Bachelors degrees.

School	Number of respondents
Cornell University	95
University of California, Berkeley	77
University of Michigan, Ann Arbor	61
University of Wisconsin, Madison	58
University of California, Davis	49
Stanford University	47
Michigan State University	46
Colorado State University	44
University of Illinois, Urbana-Champaign	44
University of California, Santa Barbara	43
Harvard University	38
University of Minnesota	38
University of Washington	36
California State University, Humboldt	32
University of Colorado, Boulder	32
Rutgers University	31
Dartmouth College	28
Duke University	28
Pennsylvania State University	27
Oberlin College	25
Ohio State University	25
University of Texas, Austin	25

Table 28. Non-U.S. schools from which 5 or more respondents received Bachelors degrees.

School	Number of respondents
McGill University	16
National Autonomous University of Mexico	14
University of Toronto	14
Queen's University, Ontario	10
University of British Columbia	10
University of Alberta	8
Cambridge University	6
University of Calgary	6
University of Guelph	6
University of London	6
University of Adelaide	5
University of Sydney	5

Table 29. Primary forms of financial support for respondents while they worked on their Bachelors degree.

Form of support	Number of respondents	Percentage of total
Family	1,567	45.4
Self-support	1,069	31.0
Fellowship	248	7.2
Student loans	229	6.6
Teaching assistantship	40	1.2
Research assistantship	14	0.4
Other	281	8.1
Total	3,448	100.0

4.4 MASTERS DEGREE

While biology was the dominant major at the Bachelors degree level, it was only slightly more common than zoology at 16% to 14%, respectively, as the major for Masters degree recipients (Table 30). Botany was again third at 10%, followed by plant ecology (7%), forest ecology (6%), and wildlife ecology and aquatic ecology (both at 5%).

The University of Wisconsin at Madison and the University of Michigan were the top two schools in the number of Masters degrees granted to respondents (Table 31). Wisconsin granted degrees to 108 respondents, while Michigan granted degrees to 84. The National Autonomous University of Mexico and the University of British Columbia, with 14 degrees granted apiece, produced the most Masters recipients outside of the United States (Table 32), followed by the University of Alberta and the University of Toronto with 13 degrees apiece.

Teaching assistantships were respondents' primary form of support during their Masters program (Table 33). Forty-six percent of the respondents reported teaching assistantships as their primary form of support, followed by research assistantships (23%) and fellowships (13%). Only 9% reported that they supported themselves in some other way. A small number of respondents cited grants and employer programs as their primary form of support at the graduate (both Masters and Ph.D.) level.

Table 30. Fields in which respondents majored for their Masters degree.

Major	Number of respondents	Percentage of total
Biology	420	15.5
Zoology	381	14.1
Botany	265	9.8
Plant ecology	201	7.4
Forest ecology	161	6.0
Wildlife biology	147	5.4
Aquatic ecology	129	4.8
Marine ecology	86	3.2
Community ecology	82	3.0
Environmental/resource management	67	2.5
Fisheries biology	65	2.4
Population biology	61	2.3
Ecosystem studies	57	2.1
Entomology	54	2.0
Physiological ecology	50	1.9
Behavioral ecology	34	1.3
Geography	34	1.3
Oceanography	26	1.0
Soil science	23	0.9
Vertebrate biology	23	0.9
Agronomy	22	0.8
Ecological modeling	20	0.7
Animal behavior	19	0.7
Wetlands ecology	19	0.7
Environmental engineering	18	0.7
Systematics/taxonomy	17	0.6
Statistical ecology	15	0.6
Conservation biology	14	0.5
Geology	14	0.5
Microbiology	11	0.4
Environmental education	10	0.4
Range ecology/management	10	0.4
Ecological complexity	9	0.3
Education	9	0.3
Invertebrate biology	9	0.3
Landscape ecology	9	0.3
Mathematics	9	0.3
Environmental science/studies	8	0.3
Paleoecology	7	0.3
Physics	7	0.3
Anthropology	6	0.2
Engineering	6	0.2
Other	67	2.5
Total	2,701	100.0

Table 31. Schools from which 25 or more respondents received Masters degrees.

School	Number of respondents
University of Wisconsin, Madison	108
University of Michigan, Ann Arbor	84
Oregon State University	60
Colorado State University	58
University of California, Davis	55
University of Minnesota	52
University of Illinois, Urbana-Champaign	49
Yale University	49
University of Washington	48
University of California, Berkeley	44
Cornell University	43
Rutgers University	42
Ohio State University	41
Michigan State University	39
University of Arizona	38
University of Florida	38
University of Tennessee	38
University of Georgia	32
University of Wyoming	32
Utah State University	31
Duke University	30
Harvard University	30
University of California, Santa Barbara	28
University of North Carolina, Chapel Hill	28

Table 32. Non-U.S. schools from which 5 or more respondents received Masters degrees.

School	Number of respondents
National Autonomous University of Mexico	14
University of British Columbia	14
University of Alberta	13
University of Toronto	13
McGill University	9
Cambridge University	5
University of Guelph	5
University of Waterloo, Ontario	5

Table 33. Primary form of financial support for respondents while they worked on their Masters degree.

Form of support	Number of respondents	Percentage of total
Teaching assistantship	1,210	45.5
Research assistantship	621	23.3
Fellowship	339	12.7
Self-support	246	9.2
Family	100	3.8
Student loans	62	2.3
Other	83	3.1
Total	2,661	100.0

4.5 DOCTORAL DEGREE

At the Ph.D. level, 16% of the respondents reported zoology as their major (Table 34). Zoology was followed by plant ecology, biology and botany at 9% each, community and aquatic ecology at 6%, and forest ecology at 5%.

The University of California at Berkeley, with 120 degrees granted, is the leading Ph.D.-granting institution among respondents (Table 35). The University of Wisconsin at Madison is second with 119, followed by Cornell University and the University of Washington at 110 apiece. Among non-U.S. schools, the University of British Columbia heads the list with 19 degrees granted (Table 36). The University of Alberta and the University of Toronto are second with 12 apiece, followed by Oxford University with 11.

Teaching assistantships, reported by 39% of the respondents, were the leading form of financial support at the Ph.D. level (Table 37). Research assistantships were second at 29%, followed by fellowships at 22%. Even fewer respondents than at the Masters degree level (4%) reported that they supported themselves through a Ph.D. program without benefit of fellowships, teaching assistantships, or research assistantships.

Table 34. Fields in which respondents majored for their Doctoral degree.

Major	Number of respondents	Percentage of total
Zoology	480	16.4
Plant ecology	255	8.7
Biology	254	8.7
Botany	252	8.6
Community ecology	184	6.3
Aquatic ecology	164	5.6
Forest ecology	145	4.9
Population biology	131	4.5
Ecosystem studies	129	4.4
Physiological ecology	110	3.8
Entomology	90	3.1
Marine ecology	83	2.8
Wildlife biology	71	2.4
Behavioral ecology	54	1.8
Fisheries biology	48	1.6
Ecological modeling	43	1.5
Oceanography	41	1.4
Vertebrate biology	34	1.2
Environmental/resource management	30	1.0
Geography	30	1.0
Soil science	29	1.0
Wetlands ecology	25	0.9
Biogeochemistry	20	0.7
Animal behavior	17	0.6
Geology	16	0.5
Microbiology	14	0.5
Statistical ecology	14	0.5
Paleoecology	13	0.4
Conservation biology	11	0.4
Evolution	9	0.3
Landscape ecology	9	0.3
Chemical ecology	8	0.3
Systematics/taxonomy	8	0.3
Chemistry	7	0.2
Ecological complexity	7	0.2
Environmental engineering	7	0.2
Genetics	7	0.2
Mathematics	7	0.2
Agronomy	6	0.2
Invertebrate biology	6	0.2
Limnology	6	0.2
Physics	5	0.2
Range ecology/management	5	0.2
Restoration ecology	5	0.2
Other	43	1.5
Total	2,932	100.0

Table 35. Schools from which 25 or more respondents received Doctoral degrees.

School	Number of respondents
University of California, Berkeley	120
University of Wisconsin, Madison	119
Cornell University	110
University of Washington	110
Duke University	101
University of California, Davis	97
University of Georgia	93
University of Michigan, Ann Arbor	82
Colorado State University	75
Oregon State University	71
Michigan State University	68
University of Minnesota	62
Rutgers University	51
University of Illinois, Urbana-Champaign	48
Yale University	42
University of North Carolina, Chapel Hill	41
University of Florida	40
Harvard University	39
University of Arizona	38
Stanford University	36
University of Tennessee	36
University of Kansas	35
University of Texas, Austin	35
North Carolina State University	34
Utah State University	34
Ohio State University	33
University of California, Los Angeles	33
University of California, Santa Barbara	33
University of Colorado, Boulder	30
Virginia Tech University	27
Indiana University, Bloomington	25

Table 36. Non-U.S. schools from which 5 or more respondents received Doctoral degrees.

School	Number of respondents
University of British Columbia	19
University of Alberta	12
University of Toronto	12
Oxford University	11
Cambridge University	6
McGill University	6
University of Calgary	5
University of Wales	5
University of Western Ontario	5

Table 37. Primary form of financial support for respondents while they worked on their Doctoral degree.

Form of support	Number of respondents	Percentage of total
Teaching assistantship	1,140	39.4
Research assistantship	838	29.0
Fellowship	645	22.3
Self-support	123	4.3
Family	42	1.5
Student loans	11	0.4
Other	95	3.3
Total	2,894	100.0

4.6 SUPPORT DURING THE EDUCATIONAL PROCESS

An overwhelming majority of respondents reported that financial support was critical to both their entry into postgraduate studies (Table 38), and their continuance of postgraduate studies (Table 39). The percentages are 82% and 88%, respectively.

Table 38. Was support critical for respondents to enter graduate studies?

Financial support was critical	Number of respondents	Percentage of total
Yes	2,892	82.1
No	631	17.9
Total	3,523	100.0

Table 39. Was support critical to the progress of respondents' graduate studies?

Financial support was critical	Number of respondents	Percentage of total
Yes	3,074	87.5
No	439	12.5
Total	3,513	100.0

A small number of respondents (259 or 7%) reported that they did not complete graduate degree programs they had begun (Table 40). Forty-four percent of those respondents reported that personal considerations were the primary reason for not completing the program. Another 39% said the cause was a lack of adequate guidance from their major professor. Sixteen percent stated that they left to take a better paying job.

Table 40. Reasons why respondents did not complete graduate degree programs they had begun.

Reason for leaving program	Number of respondents	Percentage of total
Personal considerations	115	44.4
Major professor did not provide adequate guidance	102	39.4
Received job offer that paid much more than graduate stipend	42	16.2
TOTAL	259	100.0

Table 41 shows both the number and percent of males and females citing each response and the percentage of either males or females citing a particular reason. Twenty-eight percent of the respondents who left a graduate program they had begun are female, while only 23% of the respondents to the survey are female (Table 1). Forty-nine percent of female respondents cited lack of adequate guidance from their major professor as the reason they left graduate programs they had begun. Females make up 34% of all respondents that named that reason; this compares with 28% of the total respondents to the question and 23% of total respondents to the survey being female. Forty-six percent of male respondents (46%) cited personal considerations for leaving graduate programs. The percentages of either males or females citing other reasons are similar to the percentage of males and females responding to the survey.

Table 41. Number and percent of males and females citing why they did not complete graduate degree programs they had begun and, for each response, percentage of either males or females.

Reason for leaving program	Number of males	Percent of males	Number of females	Percent of females	Percent of respondents which are male	Percent of respondents which are female
Personal considerations	86	46.2	28	38.9	75.4	24.6
Major professor did not provide adequate guidance	67	36.0	35	48.6	65.7	34.3
Received better-paying job offer	33	17.7	9	12.5	78.6	21.4
Total	186	100.0	72	100.0	72.1	27.9

4.7 AFTER GRADUATION

Thirty-six percent of respondents entered a career-track position after receiving their highest degree (Table 42). Thirty-two percent accepted a postdoctoral appointment and 17% took temporary positions. Of those accepting postdoc appointments, 70% have held only one postdoc and 21% have held two (Table 43).

Table 42. What respondents did after receiving their highest degree.

Action after graduation	Number of respondents	Percentage of total
Entered a career-track position	1,234	36.2
Held a postdoc appointment	1,100	32.2
Accepted a temporary position	593	17.4
Pursued another degree	240	7.0
Continued in or returned to prior employment	67	2.0
Served as a volunteer	24	0.7
Other	153	4.5
TOTAL	3,411	100.0

Table 43. The number of postdoc appointments respondents have held.

Number of postdocs	Number of respondents	Percentage of total
One	929	70.3
Two	282	21.3
Three	86	6.5
More than three	24	1.8
TOTAL	1,321	100.0

5. ENVIRONMENTAL SCIENCE CAPABILITIES

For the purposes of understanding this section, "active areas of research" is assumed to be those disciplines in which respondents are currently working, while "areas of expertise" reflects background and training.

5.1 ACTIVE AREAS OF RESEARCH

A listing of the fields in which respondents are actively conducting research is given in Table 44. Aquatic ecology (24% of respondents), community ecology (20%), population biology (18%), and plant ecology (16%) top the list.

The **Sustainable Biosphere Initiative: an ecological research agenda** (Lubchenco et al. 1991) identified three research areas of primary importance during the foreseeable future: 1) global change, 2) biological diversity, and 3) sustainable ecological systems. Both biological diversity and global change research are each being conducted by 4% of the respondents, and sustainable ecosystem research (including both sustainable agriculture and ecosystem sustainability) by 2%. However, the three SBI areas are interdisciplinary in nature. In fact, conservation biology (10% of the respondents), ecosystem studies (8%), ecological modelling (6%), environmental/resource management (6%), landscape ecology (5%), restoration ecology (5%), biogeochemistry (4%), systematics/taxonomy (3%), nutrient fluxes (3%), paleoecology (2%), environmental education (1%), and agroforestry, agronomy, environmental law and geology (the latter four each named by less than 1% of the respondents) all could contribute to the SBI research areas (Table 44).

Table 44. Fields in which respondents are actively conducting ecological research. Respondents were allowed to give more than one response, therefore the response column will add up to more than 100%.

Field	Number of respondents	Percent of respondents
Aquatic ecology	846	24.1
Community ecology	695	19.8
Population biology	637	18.1
Plant ecology	559	15.9
Conservation biology	362	10.3
Forest ecology	352	10.0
Physiological ecology	342	9.7
Behavioral ecology	301	8.6
Ecosystem studies	287	8.2
Marine ecology	243	6.9
Wetlands ecology	219	6.2
Ecological modeling	217	6.2
Environmental/resource management	207	5.9
Wildlife biology	181	5.2
Fisheries biology	176	5.0
Landscape ecology	174	5.0
Entomology	168	4.8
Restoration ecology	161	4.6
Impact assessment	144	4.1
Vertebrate biology	142	4.0
Biological diversity	134	3.8
Global change	130	3.7
Invertebrate biology	130	3.7
Biogeochemistry	126	3.6
Animal behavior	122	3.5
Statistical ecology	108	3.1
Systematics/taxonomy	100	2.8
Nutrient fluxes	93	2.6
Botany	83	2.4
Chemical ecology	79	2.2
Toxicology	76	2.2
Microbiology	68	1.9
Soil science	62	1.8
Paleoecology	59	1.7
Remote sensing	52	1.5
Anthropology	51	1.5
Sustainable agriculture	50	1.4
Risk assessment	48	1.4
Oceanography	47	1.3
Zoology	46	1.3
Environmental policy	38	1.1
Hydrology	38	1.1
Environmental education	31	0.9
Ecosystem sustainability	30	0.9
Other	271	8.6
Total number of respondents	3,512	

The recent report of the Oversight Review Board of the National Acid Precipitation Program defined applied research as "inquiry aimed at discovering useful guidelines for management of natural resources, business enterprises, social and governmental institutions, and the services needed by our society" (Oversight Review Board 1991). Sixty-seven percent of the respondents reported that they were currently engaged in applied research according to that definition (Table 45). Roughly the same percentage (66%) reported that they would prefer doing applied research (according to that definition) in the future (Table 46). Seventy-six percent of those currently engaged in applied research would prefer to do more, while only 45% of those not currently engaged in applied research would prefer to do applied research (Table 47).

Table 45. Number of respondents currently engaged in applied research, given the definition on page 48.

Engaged in applied research	Number of respondents	Percentage of total
Yes	2,397	67.2
No	1,168	32.8
TOTAL	3,565	100.0

Table 46. Number of respondents stating a preference to do more applied research, given the definition on page 48.

Prefer to do more applied research	Number of respondents	Percentage of total
Yes	2,269	65.6
No	1,190	34.4
TOTAL	3,459	100.0

Table 47. Percentage of respondents stating a preference to do more applied research, by whether or not they are currently engaged in applied research.

	Those doing applied research	Those not doing applied research
Yes	76.0	44.6
No	24.0	55.4

5.2 AREAS OF EXPERTISE

Aquatic ecology and plant ecology (at 9% apiece) were the most-frequently cited primary areas of expertise among the respondents (Table 48). Other areas frequently named include: community ecology (8%), population biology (7%), and physiological, forest and marine ecology (each at 5%).

Less than 1% of the respondents listed any of the three areas identified as priority topics in the Sustainable Biosphere Initiative (SBI) report (global change, biological diversity, or sustainable ecological systems) as their primary area of expertise. The breadth of experience looks more promising, however, when related fields and secondary areas of expertise (Table 49) are considered. As was stated previously, the three priority research areas named in the SBI report are interdisciplinary in nature. Thus, expertise in the areas of ecosystem studies, fisheries biology, conservation biology, environmental/resource management, impact assessment, landscape ecology and ecological modelling all could contribute to achieving a sustainable biosphere (Lubchenco et al. 1991).

Table 48. Fields that respondents list as their primary area of expertise.

Field	Number of respondents	Percentage of total
Aquatic ecology	336	9.2
Plant ecology	335	9.2
Community ecology	301	8.3
Population biology	244	6.7
Physiological ecology	181	5.0
Forest ecology	169	4.6
Marine ecology	162	4.5
Behavioral ecology	134	3.7
Wetlands ecology	119	3.3
Wildlife biology	115	3.2
Ecosystem studies	107	2.9
Fisheries biology	98	2.7
Conservation biology	94	2.6
Environmental/resource management	92	2.5
Impact assessment	87	2.4
Vertebrate biology	83	2.3
Ecological modeling	74	2.0
Botany	71	2.0
Entomology	69	1.9
Biology	48	1.3
Environmental policy	47	1.3
Environmental education	43	1.2
Statistical ecology	42	1.2
Animal behavior	39	1.1
Biogeochemistry	37	1.0
Invertebrate biology	36	1.0
Landscape ecology	36	1.0
Paleoecology	35	1.0
Restoration ecology	32	0.9
Systematics/taxonomy	30	0.8
Chemical ecology	26	0.7
Microbiology	25	0.7
Zoology	23	0.6
Global change	22	0.6
Biological diversity	21	0.6
Nutrient fluxes	20	0.6
Sustainable agriculture	20	0.6
Toxicology	20	0.6
Soil science	19	0.5
Geography	17	0.5
Oceanography	15	0.4
Ecological complexity	12	0.3
Risk assessment	12	0.3
Environmental engineering	10	0.3
Agronomy	9	0.2
Remote sensing	8	0.2
Geology	7	0.2
Hydrology	7	0.2
Agroforestry	6	0.2
Environmental law	6	0.2
Other	35	1.0
Total	3,636	100.0

Table 49. Fields that respondents list as their secondary area of expertise.

Field	Number of respondents	Percentage of total
Community ecology	298	8.3
Plant ecology	298	8.3
Population biology	272	7.5
Aquatic ecology	149	4.1
Forest ecology	142	3.9
Conservation biology	141	3.9
Ecosystem studies	138	3.8
Behavioral ecology	127	3.5
Environmental/resource management	122	3.4
Physiological ecology	120	3.3
Wetlands ecology	103	2.9
Ecological modeling	96	2.7
Marine ecology	92	2.6
Botany	89	2.5
Invertebrate biology	86	2.4
Wildlife biology	82	2.3
Vertebrate biology	80	2.2
Entomology	71	2.0
Impact assessment	70	1.9
Fisheries biology	69	1.9
Statistical ecology	67	1.9
Animal behavior	65	1.8
Landscape ecology	60	1.7
Restoration ecology	56	1.6
Biogeochemistry	54	1.5
Biological diversity	52	1.4
Zoology	45	1.2
Environmental policy	44	1.2
Biology	39	1.1
Systematics/taxonomy	36	1.0
Soil science	35	1.0
Global change	32	0.9
Environmental education	30	0.8
Nutrient fluxes	30	0.8
Risk assessment	30	0.8
Microbiology	28	0.8
Chemical ecology	24	0.7
Remote sensing	24	0.7
Toxicology	24	0.7
Mathematics	16	0.4
Oceanography	16	0.4
Paleoecology	14	0.4
Sustainable agriculture	14	0.4
Ecological complexity	12	0.3
Ecosystem sustainability	12	0.3
Geography	12	0.3
Hydrology	10	0.3
Other	77	2.1
Total	3,603	100.0

5.3 TEACHING EXPERTISE

The subject most frequently taught by the respondents is biology, with 641 responses (Table 50). Community ecology is second with 522 responses, followed by population biology (430), plant ecology (317), and ecosystem studies (300). Courses in conservation biology are taught by 238 respondents, biological diversity by 95, global change by 68, sustainable agriculture by 25, and ecosystem sustainability by 23. Such responses are encouraging for achievement of a sustainable biosphere, since one can assume that classes in conservation biology, biological diversity, global change, sustainable agriculture and ecosystem sustainability all encourage students to consider questions raised in the SBI report (Lubchenco et al. 1991).

Table 50. Subjects taught by respondents during the last two years. Respondents were allowed to give more than one response.

Course	Number of respondents
Biology	641
Community ecology	522
Population biology	430
Plant ecology	317
Ecosystem studies	300
Botany	274
Aquatic ecology	251
Conservation biology	238
Zoology	223
Environmental/resource management	202
Vertebrate biology	183
Physiological ecology	181
Marine ecology	164
Forest ecology	163
Statistical ecology	163
Environmental education	151
Behavioral ecology	127
Invertebrate biology	125
Animal behavior	113
Ecological modeling	109
Wildlife biology	109
Entomology	97
Biological diversity	95
Wetlands ecology	85
Fisheries biology	83
Systematics/taxonomy	82
Global change	68
Landscape ecology	64
Ecological complexity	54
Microbiology	54
Oceanography	51
Environmental policy	49
Geography	49
Impact assessment	49
Soil science	49
Biogeochemistry	43
Evolution	40
Restoration ecology	33
Chemical ecology	29
Nutrient fluxes	25
Sustainable agriculture	25
Toxicology	25
Mathematics	24
Ecosystem sustainability	23
Geology	21
Paleoecology	20
Other	199

5.4 GRANTSMANSHIP

Fifty-seven percent of the respondents reported applying for grants to support ecological research within the last two years (Table 51). A summary of the grant applications by area of research is given in Table 52. The greatest numbers of grant applications were in the areas of population biology and community ecology, with 475 and 413 applications apiece. The largest number of grants funded were likewise in those two areas (269 and 239, respectively). Ninety-five applications were funded for global change research, 64 for biological diversity research, and 36 in sustainable ecosystems (21 in sustainable agriculture and 15 in ecosystem sustainability).

Table 51. Number of respondents who report having applied for grants to support ecological research during the last two years.

Applied for research grant	Number of respondents	Percentage of total
Yes	2,059	57.2
No	1,539	42.8
TOTAL	3,598	100.0

Some respondents report lower funding rates than can be calculated from the data presented in Table 52. Although no data are available to explain this discrepancy, possible explanations may be that respondents who are unsuccessful may abandon the process over time, or may be less likely to answer the survey question, while successful applicants are more likely to provide details; or that ESA members in general are more successful than non-ESA members in writing proposals. It is also possible that respondents included cooperative agreements along with grants. Another factor for consideration is that 23% of respondents received grants in the $5,000-$24,000 range; many of these grants, particularly in the lower part of this range, are probably grants to support dissertation research for graduate students. Research grants in this range may lead respondents to feel inadequately funded, and in other disciplines would be inadequate to support research.

Table 52. Summary of grant application results for respondents during the last two years.

Field	Number filed	Number funded	Number not funded	Number pending
Population biology	475	269	117	89
Community ecology	413	239	87	87
Aquatic ecology	333	210	67	56
Physiological ecology	307	142	101	64
Conservation biology	290	181	48	61
Forest ecology	272	158	64	50
Marine ecology	272	160	59	53
Ecosystem studies	265	159	61	45
Plant ecology	262	147	70	45
Behavioral ecology	194	108	53	33
Wetlands ecology	192	123	31	38
Global change	191	95	44	52
Fisheries biology	175	119	37	19
Wildlife biology	167	129	25	13
Restoration ecology	143	81	31	31
Environmental/resource management	140	105	16	19
Landscape ecology	114	71	26	17
Biological diversity	110	64	23	23
Biogeochemistry	99	56	20	23
Ecological modeling	94	61	19	14
Entomology	88	56	18	14
Impact assessment	72	52	13	7
Nutrient fluxes	67	30	17	20
Chemical ecology	60	36	14	10
Sustainable agriculture	56	21	21	14
Environmental education	55	33	11	11
Paleoecology	55	34	9	12
Toxicology	53	37	7	9
Vertebrate biology	51	37	5	9
Systematics/taxonomy	48	28	12	8
Oceanography	45	23	15	7
Animal behavior	42	25	9	8
Remote sensing	38	20	16	2
Botany	34	20	8	6
Trace gas fluxes	33	20	6	7
Invertebrate biology	32	19	6	7
Ecosystem sustainability	28	15	5	8
Microbiology	27	14	10	3
Bioremediation	24	10	6	8
Risk assessment	24	12	6	6
Biology	21	14	4	3
Agronomy	20	9	5	6
Hydrology	20	14	2	4
Agroforestry	18	10	3	5
Statistical ecology	16	9	4	3
Zoology	15	8	6	1
Evolution	15	6	6	3
Soil science	14	10	3	1
Geography	13	8	3	2
Environmental policy	11	10	0	1
Other	57	30	15	12
Total	5,660	3,347	1,264	1,049

Some funding agencies report lower funding rates than can be calculated from the data presented in Table 52. For example, the National Science Foundation's Division of Biotic Systems and Resources Annual Report for Fiscal Year 1991 gives funding success rates for all research awards of 18% for the Systematic Biology Program, 24% for the Ecosystem Studies Program, 23% for the Ecology Program, and 23% for the Population Biology Program (National Science Foundation 1992). One factor which may account for the discrepancy is the large number of "other sources of funding" cited by respondents in Table 55 (see page 61 for further discussion).

Of the 1,988 respondents that reported on the nature of their grant applications during the last two years, 30% applied for only one grant, 22% for two, 16% for three, and 12% for four grants (Table 53). Only 4% applied for eight or more grants.

Table 53. Summary of the number of grant applications made per individual respondent for ecological research during the last two years.

Number of grants applied for	Number of respondents	Percentage of total
One	605	30.4
Two	428	21.5
Three	327	16.4
Four	238	12.0
Five	156	7.8
Six	102	5.1
Seven	52	2.6
Eight or more	80	4.0
TOTAL	1,988	100.0

Twenty-three percent of successful grant applications fell within the $5,000-$24,999 range (Table 54), with population biology leading the category with 65 grants. For many research projects, $25,000 would be inadequate to sustain a functioning research team. In many laboratories, a small research program would include a professor, a postdoc, two graduate students, and two technicians. Such a program could not be supported on $25,000. Thus, 43% of respondents (Table 55) received grant amounts which are insufficient to consistently support a small research program.

Ecosystem studies research has received the largest number of grants greater than $250,000 with 66 (Table 55), and population biology has received the most in the $100,000-$250,000 range with 46 grants. Of the 16 sources of financial support from which members could choose in responding to a question on source of grant support, the National Science Foundation was reported to have funded the greatest number with 525 applications funded, and has awarded the largest number of grants greater than $100,000, with 140 awards in the $100,000-$250,000 category and 142 awards greater than $250,000 (Table 55). This number is many times higher than the total number of grants funded by NSF for ecological research. The explanation for the discrepancy is unclear; however, if a number of collaborators on a single grant each report receiving a grant, this would clearly inflate the total numbers. It is also unclear whether the grant amounts cited by respondents represent total grant amount or the grant amount per year. Thus, it is possible that the total amounts reported by respondents may be underestimated.

Table 54. Listing of typical grant amounts to respondents by research area.

Field	Below $1,000	$1,000 - $4,999	$5,000 - $24,999	$25,000 - $49,999	$50,000 - $99,999	$100,000 - $250,000	Above $250,000
Population biology	33	46	65	33	25	46	21
Community ecology	27	52	53	33	25	30	19
Aquatic ecology	17	30	47	29	40	33	14
Conservation biology	13	40	52	25	21	14	16
Marine ecology	10	27	37	17	25	30	14
Ecosystem studies	2	5	13	23	21	29	66
Forest ecology	7	25	45	24	32	19	6
Plant ecology	21	30	37	13	23	18	5
Physiological ecology	11	18	41	10	21	36	5
Wildlife biology	3	15	38	26	13	16	18
Wetlands ecology	6	11	35	21	30	15	5
Fisheries biology		11	17	34	28	18	11
Behavioral ecology	20	26	26	8	13	9	6
Environmental/resource management		5	32	18	17	19	14
Global change	1	3	12	8	18	29	24
Restoration ecology	1	12	22	15	15	12	4
Landscape ecology	4	3	12	7	12	20	13
Biological diversity	1	7	18	11	14	8	5
Ecological modeling	1	6	7	14	13	9	11
Biogeochemistry		4	18	9	9	9	7
Entomology	2	10	13	8	8	13	2
Impact assessment		2	14	11	12	6	7
Toxicology		1	6	8	6	10	6
Vertebrate biology	1	5	18	5	7	1	
Chemical ecology	4	6	4	5	6	5	6
Paleoecology	5	2	5	4	5	8	5
Environmental education	1	5	6	4	7	4	6
Nutrient fluxes	1	1	8		7	9	4
Systematics/taxonomy	5	4	5	2	3	8	1
Animal behavior	2	8	5	4	1	5	
Oceanography			5	1		5	12
Sustainable agriculture	2	4	5	2	4	4	
Botany	2	11	5	1	1		
Remote sensing		3	4	2	3	3	5
Trace gas fluxes		1	2	3	2	6	6
Invertebrate biology	3	1	7	4	3	1	
Ecosystem sustainability	1		3	3	2	5	1
Biology	2	4	4		1		3
Hydrology	1		1	5	2	4	1
Microbiology	2		4	1	2	3	2
Risk assessment			1	1	4	4	2
Agroforestry		2	5	2	1		
Bioremediation			1	2	5	2	
Environmental policy	1			3	2	1	3
Soil science				4	2	3	1
Other	8	8	19	11	10	7	7
Total	221	454	777	474	521	536	364

Table 55. Listing of typical grant amounts to respondents by funding agency.

Funding source	Total	Below $1,000	$1,000 - $4,999	$5,000 - $24,999	$25,000 - $49,999	$50,000 - $99,999	$100,000 - $250,000	Above $250,000
National Science Foundation	525	5	12	94	53	79	140	142
Universities	434	87	193	125	8	14	4	3
State agencies	381	8	53	94	83	69	49	25
Foundation grants	290	56	67	84	23	21	22	17
U.S. Dept. of the Interior	255	4	15	63	50	52	52	19
U.S.D.A. Forest Service	160		15	46	47	33	13	6
U.S. Dept. of Agriculture	159	2	8	27	22	31	57	12
U.S. Environmental Protection Agency	143		4	15	16	37	40	31
National Oceanic and Atmospheric Administration	119		3	26	30	28	25	7
Industry	97		5	20	18	21	21	12
U.S. Dept. of Energy	66		2	3	5	15	22	19
National Aeronautics and Space Administration	57			11	7	10	10	19
U.S. Dept. of Defense	50		1	11	4	11	11	12
U.S. Agency for International Development	17		2	3	3	1	4	4
National Institutes of Health	17		1	1	1	5	5	4
U.S. Man and the Biosphere Program	16			4	4	5	1	2
Other sources	561	59	73	150	100	89	60	30
Total	3,347	221	454	777	474	521	536	364
Percent	100.0%	6.6%	13.6%	23.2%	14.2%	15.6%	16.0%	10.9%

The large number of grants funded by "other sources" (Table 55) is attributed to U.S. federal agencies not mentioned in the survey instrument (Appendix A), international organizations (i.e., United Nations affiliates and the World Bank), foreign governments, joint agreements between the United States and other countries (i.e., the Great Lakes Fisheries Commission), local and regional governments, independent funding agencies, consulting firms and private contributors. Sixty-six grants were funded by environmental organizations and other non-profit organizations. Fifty-one grants were funded by professional societies, 25 of those by Sigma-Xi. In addition, non-university based educational organizations (which includes museums) funded 49 grants, 20 by the Smithsonian Institution, 16 by the National Geographic Society, and eight from the American Museum of Natural History.

Of the 561 grants funded by "other sources" (Table 55), 308 went to 220 non-U.S. residents. The 220 non-U.S. residents includes 86 Canadians, 47 Australians, 12 respondents from the United Kingdom, 11 Swedes and 9 Mexicans. The ~~National~~ Science and Engineering Research Council of Canada awarded 67 grants to respondents and the Environment Green Fund awarded 5. Canadian provincial governments awarded 13 grants. The Australian Research Council awarded 29 grants to recipients, the National Engineering Research Council of the United Kingdom awarded 8 grants, and CONACYT (National Advisory for Science and Technology -- Consego Nacional de Siensia y Tecnologie) of Mexico awarded 6.

Overall, survey respondents indicated receiving support from over 300 different funding sources. Of these, foreign respondents indicated 119 sources of funding. More detailed summaries of grant activity by funding source are given in Appendix D. However, due to several problems associated with design of the 1992 survey instrument, reliance on funding rates shown in Appendix D should be done with extreme caution.

5.5 PUBLICATIONS

Seventy-eight percent of the respondents report that, during the last two years, they have published scholarly or professional writing in the field of ecology (Table 56). The majority of these were articles in refereed journals (2,379), followed by chapters in scholarly books (998) and technical reports (884) (Table 57).

Table 56. Number of respondents who reported having any scholarly or professional writing in the field of ecology published or accepted for publication during the last two years.

Published any professional writing	Number of respondents	Percentage of total
Yes	2,806	77.5
No	814	22.5
TOTAL	3,620	100.0

Table 57. Classification of ecologically-related publications by respondents during the last two years. Respondents were allowed to give more than one response.

Type of professional publication	Number of respondents
Article in refereed journal	2,379
Chapter in a scholarly book	998
Technical report	884
Paper in non-refereed proceedings other than book or journal	719
Paper in refereed proceedings other than book or journal	533
Article in newspaper/magazine	432
Book review in refereed journal	400
Book or monograph (author or coauthor)	278
Book or monograph (editor or coeditor)	206
Other	66

6. CURRENT EMPLOYMENT PATTERNS

6.1 PRINCIPAL EMPLOYMENT CATEGORIES

Most respondents are employed in college education -- 51% at the university level, 9% at four-year institutions (Table 58). Civilians employed at the national government level form the second-largest employer category (12%). The percentages of respondents in these employment categories appear to have been relatively stable through the years, except for prior to 1955, where fewer than 45% were employed at the university level (Table 59)[3]. An interesting trend is the decrease in the percentage of respondents engaged in primary or secondary education, especially in light of the importance of education at all levels in stimulating interest in ecology (see Section 4.1, Table 23). Prior to 1965, 10% or more of the current membership was employed as elementary or secondary school teachers. Another interesting trend is the decrease in the percentage of the current membership involved in military service, decreasing from 6% prior to 1951 to 0.1% in 1991-92. The rate of decrease is particularly acute in the early 1970's, corresponding with the withdrawal of U.S. forces from Vietnam and the cessation of the draft. The percentage employed at either consulting firms or at research center/institutes has increased over the past two decades. The increased percentage at consulting firms probably reflects a growth in responses to increasing environmental regulation.

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[3] Percentages given for the period 1991-92 in Table 59 may differ somewhat from those given in Table 58 due to the fact that two separate questions were asked in the current survey, one about current employer category and another about employment history. The text of the survey questionnaire is provided in Appendix A.

Table 58. Classification of principal employers of respondents in 1992.

Principal employer	Number of respondents	Percentage of total
University, other than medical school	1,841	50.6
National government, civilian employee	429	11.8
Four-year college	334	9.2
Consulting firm	196	5.4
Research center/institute	158	4.3
State or local government	154	4.2
Self-employed	124	3.5
National laboratory	64	1.8
Environmental nonprofit organization	64	1.8
Business or industry	57	1.6
Junior college, two-year college or technical institute	44	1.2
Museum	27	0.7
Elementary, middle, or secondary school	18	0.5
Private foundation	17	0.5
Other nonprofit organization	14	0.4
Medical school (including university-affiliated hospital or medical center)	9	0.2
Trade/professional association	4	0.1
United Nations organization	3	0.1
Military service	2	0.1
Historical organization	0	0.0
Other	80	2.2
TOTAL	3,639	100.0

Table 59. Percentage of respondents in selected employment categories during the past 50 years. Percentages for the period 1991-92 may differ somewhat from those given for current employer category in Table 58.

Employment category	1991-1992	1986-1990	1981-1985	1976-1980	1971-1975	1966-1970	1961-1965	1956-1960	1951-1955	Pre-1951
University	48.8	50.6	51.0	51.8	52.1	53.0	52.2	46.3	42.5	35.8
National government, civilian	12.0	10.4	10.0	9.0	8.0	7.8	8.6	7.5	6.4	9.3
Four-year college	9.2	8.6	9.2	9.7	11.0	11.5	10.4	9.3	10.0	6.6
Consulting firm	5.6	5.1	4.5	4.5	3.2	0.1	0.2	0.0	0.0	0.0
State or local government	4.6	5.1	4.8	4.2	3.8	2.2	2.2	5.6	5.0	3.3
Research center/institute	4.6	4.8	3.6	2.8	3.3	2.3	2.2	1.2	1.8	1.3
Self-employed	3.5	2.9	2.7	2.8	2.8	2.3	2.2	1.9	3.2	5.3
Environmental nonprofit	1.9	2.0	1.4	1.3	0.9	0.2	0.0	0.0	0.5	0.0
National laboratory	1.9	1.9	1.9	2.4	2.1	1.3	1.0	1.9	1.4	0.7
Business or industry	1.7	2.2	3.4	4.1	3.5	4.3	2.2	2.8	4.1	7.9
Junior college, etc.	1.2	1.3	1.2	1.5	1.8	1.0	0.2	0.6	1.4	2.6
Private foundation	1.2	0.9	0.7	0.6	0.7	0.4	0.4	0.3	0.0	0.7
Museum	1.0	0.9	1.4	1.1	0.7	0.9	0.8	0.6	0.5	0.7
Elementary and secondary school, etc.	0.4	0.6	1.2	1.1	1.8	5.2	9.6	12.1	11.4	13.9
Other nonprofit organization	0.4	0.3	0.4	0.6	0.7	0.4	0.4	0.9	0.5	0.0
Medical school	0.2	0.5	0.5	0.3	0.1	0.5	0.2	0.6	1.4	0.0
Trade/professional association	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.3	0.0	0.0
Military service	0.1	0.2	0.4	0.5	1.3	3.7	3.6	4.0	5.5	6.0
United Nations organization	0.1	0.1	0.1	0.1	0.3	0.4	0.2	0.0	0.0	0.0
Historical organization	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other	1.6	1.6	1.6	1.6	1.8	2.4	3.4	4.0	4.6	6.0
Total number of respondents	3,356	3,157	2,552	11,915	1,359	820	500	322	219	151

6.2 CURRENT WORK ACTIVITIES

The majority of respondents report either basic research or teaching as their primary or secondary work activity (Table 60). Thirty-one percent consider basic research their primary work activity, and 28% report teaching as their primary work activity. Likewise, 23% and 22% consider basic research or teaching their secondary work activities, respectively. Fifteen percent of the respondents consider applied research their primary work activity, while 12% view it their secondary activity.

Table 60. Classification of respondents' primary and secondary work activities.

	Primary work activity		Secondary work activity	
Work activity	Number of respondents	Percentage of total	Number of respondents	Percentage of total
Basic research	1,129	31.3	830	23.7
Teaching	1,005	27.8	757	21.6
Applied research	527	14.6	427	12.2
Consulting	222	6.1	95	2.7
Management/administration of other programs	135	3.7	84	2.4
Management/administration of R & D	127	3.5	111	3.2
Conservation	70	1.9	78	2.2
Management/administration of education programs	65	1.8	82	2.3
Field work	61	1.7	300	8.6
Regulatory affairs	52	1.4	67	1.9
Writing	49	1.4	310	8.8
Policy development	26	0.7	59	1.7
Computer applications	23	0.6	45	1.3
Statistical analysis	22	0.6	85	2.4
Information management	17	0.5	31	0.9
Operations - production, maintenance, construction	13	0.4	12	0.3
Survey/forecasting work	6	0.2	3	0.1
Development of equipment, products and systems	5	0.1	19	0.5
Editing	5	0.1	25	0.7
Sales, marketing, public relations	5	0.1	31	0.9
Institutional fundraising	1	0.0	12	0.3
Other	44	1.2	41	1.2
Total	3,609	100.0	3,504	100.0

A number of reasons account for respondents having jobs entailing something other than teaching or research (Table 61). Twenty-two percent report that they have found more attractive career options. A lack of appropriate positions was cited by 18%, a change in career or professional interests accounted for 13%, and 6% stated that they never wanted to teach or conduct research.

Table 61. Reasons respondents give for having jobs entailing something other than teaching or research.

Reasons for non-teaching or non-research jobs	Number of respondents	Percentage of total
More attractive career options	147	22.3
Positions in field of expertise not available	117	17.8
Change in career/professional interests	84	12.8
Better pay	61	9.4
Constraints due to family circumstances	54	8.2
Never wanted to teach or conduct research	37	5.6
Preferred geographic location	23	3.5
Other	135	20.5
TOTAL	658	100.0

Table 62 shows the number and percent of males and females citing each reason for having a job entailing something other than teaching or research as well as the percentage of either males or females having some other kind of employment. For both males and females the reason cited most frequently for having non-teaching or research jobs is "more attractive career options" (24% of males, 19% of females). An equal number of women also indicated that they never wanted to teach or conduct research. The least important reason among both males and females is "preferred geographic location."

In comparisons between genders, better pay was cited by a high percentage of males (82%), though only 74% of the respondents to the question and 77% of the respondents to the survey are male (Table 1). In contrast, females cited family circumstances (59%) and preferred geographic location (30%). Twenty-six percent of the respondents to the question and 23% of the respondents to the survey are female (Table 1).

Table 62. Number and percentage of males and females citing why they have jobs entailing something other than teaching or research, and percentage or either males or females citing a given reason.

Reasons for non-teaching or research jobs	Number of males	Percent of males	Number of females	Percent of females	Percentage of respondents which are male	Percentage of respondents which are female
More attractive career options	115	23.9	32	18.6	78.2	21.8
Positions in field of expertise not available	89	18.5	26	15.1	77.4	22.6
Change in career/professional interests	65	13.5	19	11.0	77.4	22.6
Better pay	49	10.2	11	6.4	81.7	18.3
Constraints due to family circumstances	22	4.6	32	18.6	40.7	59.3
Never wanted to teach or conduct research	27	5.6	10	5.8	73.0	27.0
Preferred geographic location	16	3.3	7	4.1	69.7	30.4
Other	98	20.4	35	20.3	73.7	26.3
Total	481	100.0	172	100.0	73.7	25.6

While 63% of the respondents who are not currently employed as teachers or researchers reported that they would prefer to be, 37% said they would not (Table 63).

Table 63. Would respondents who are not employed in a job involving teaching or research prefer to be?

Is teaching or research preferable	Number of respondents	Percentage of total
Yes	634	62.5
No	380	37.5
Total	1,014	100.0

6.3 OCCUPATIONAL LEVEL AND TENURE STATUS

Forty-two percent of the respondents reported that they are currently employed at the Senior professional/professor/associate professor/middle manager, etc., level (Table 64). Twenty-three percent are employed at the Professional/assistant professor/assistant superintendent, etc., level. Of those respondents employed at institutions of higher education, 43% reported that they have tenure (Table 65). Sixteen percent are not tenured, but in a tenure track position. The remainder are either not in tenure track positions (14%) or tenure did not apply to their situation (27%).

Table 64. Occupational level of respondents as of 15 February 1992.

Occupational level	Number of respondents	Percentage of total
Senior professional/Professor/Associate professor/Middle manager, etc.	1,508	42.1
Professional/Assistant professor/Assistant superintendent, etc.	848	23.7
Student	450	12.6
Senior manager/Director/Dean/Educational department head, etc.	376	10.5
Junior professional/Instructor/Supervisor, etc.	323	9.0
Technician/Paraprofessional, etc.	74	2.1
TOTAL	3,579	100.0

Table 65. Tenure status of respondents employed at institutions of higher education.

Tenure status	Number of respondents	Percentage of total
Tenured	1,004	43.1
Not tenured, but in tenure track	363	15.6
Not tenured, not in tenure track	327	14.0
Tenure not applicable	634	27.2
Total	2,328	100.0

6.4 REASONS NOT EMPLOYED AS ECOLOGISTS

Respondents cite a number of reasons for not currently being employed as ecologists (Table 66). The leading reason given is a change in career/professional interests (30%), followed by a lack of appropriate positions (25%) and more attractive career options (17%). In addition, it should be noted that this survey considered ESA members in 1992; it did not include individuals who have left either the ESA or the discipline of ecology prior to 1992.

Table 66. Reasons why respondents are not currently employed as ecologists.

Reasons not employed as an ecologist	Number of respondents	Percentage of total
Change in career/professional interests	75	30.4
Positions in field of expertise not available	62	25.1
More attractive career options	42	17.0
Constraints due to family circumstances	20	8.1
Better pay	13	5.3
Change in constraints of job	8	3.2
Term "ecologist" too specialized	5	2.0
Preferred geographic location	3	1.2
Other	19	7.7
TOTAL	247	100.0

Table 67 gives the number and percent of males and females and the percentages of either males or females citing each reason for not being employed as an ecologist. For males the reason cited most frequently is "change in career or professional interests" (32% of males), while females cited "positions in field of expertise not available" most often (29% of females). When looking at the ratio of males to females citing a given reason, a higher percentage of females cited family circumstances (58%), better pay (33%), and "positions in field of expertise not available" (31%). Twenty-seven percent of the respondents to the question and 23% of the respondents to the survey are female (Table 1). Eighty-three percent of respondents citing "more attractive career options" were male. The only three individuals citing preferred geographic location were male (Table 67).

Table 67. Number and percentage of males and females citing why they are not currently employed as ecologists, and percentage of either males or females citing a given reason.

Reasons for not being employed as an ecologist	Number of males	Percent of males	Number of females	Percent of females	Percentage of respondents which are male	Percentage of respondents which are female
Change in career/professional interests	56	31.5	18	27.7	75.7	24.3
Positions in field of expertise not available	43	24.2	19	29.2	69.4	30.6
More attractive career options	34	19.1	7	10.8	82.9	17.7
Constraints due to family circumstances	8	4.5	11	16.9	42.1	57.9
Better pay	8	4.5	4	6.2	66.7	33.3
Preferred geographic location	3	1.7	0	0.0	100.0	0.0
Other	26	16.3	6	9.2	81.3	18.8
Total	178	100.0	65	100.0	73.3	26.7

Forty percent of the 359 respondents who did not consider themselves an ecologist as of 15 February 1992 would prefer to be employed as an ecologist (Table 68). Sixty percent state they would rather not.

Table 68. Would respondents not employed as ecologists prefer to be?

Is being employed as an ecologist preferable	Number of respondents	Percentage of total
Yes	114	40.1
No	215	59.9
Total	359	100.0

6.5 THE FUTURE OF THE PROFESSION

On a personal level, respondents appear quite optimistic about their futures as ecologists. Eighty-five percent stated that there is an excellent or good probability of their remaining in the field over the next three years (Table 69). An overwhelming majority (90%) think it unlikely that their department or program will eliminate an ecological position in the next five years (Table 70). However, only 44% anticipate the creation of a new ecological position at their department or program (Table 71).

Table 69. The probability of respondents being in the field of ecology in 3 years.

Probability of remaining in ecology	Number of respondents	Percentage of total
Excellent	2,222	61.3
Good	871	24.0
Fair	310	8.5
Poor	223	6.1
Total	3,626	100.0

Table 70. Number of respondents reporting that their department/program anticipates eliminating an ecological position in the next five years.

Department/program anticipates eliminating an ecological position	Number of respondents	Percentage of total
Yes	315	9.8
No	2,890	90.2
Total	3,205	100.0

Table 71. Number of respondents reporting that their department/program anticipates creating an ecological position in the next five years.

Department/program anticipates creating an ecological position	Number of respondents	Percentage of total
Yes	1,434	43.9
No	1,831	56.1
Total	3,265	100.0

7. COMPARISONS WITH OTHER STUDIES

7.1 OTHER ESA DATA

To address the question of whether there might be gender bias in the probability of returning the survey questionnaires, the percentages of male and female respondents was compared to the percentage of male and female ESA members (as each individual indicated on their annual dues renewal form). Of the 5,095 members reporting their gender on the annual dues form (as of 6 October 1992), 78% were male and 22% female (data reported by the ESA Business Office). The percentages of male and female respondents to the 1992 Profiles of Ecologists survey questionnaire are 77% and 23% respectively, almost identical to the membership as a whole. It is safe to conclude that there is no gender bias in the probability of returning the 1992 survey.

The Travis survey of 1987 (see Appendix B for text of survey; Travis 1989) reported that only 18% of the respondents were female. Whether the percentage of women in the society has increased over the last five years or whether female members were underrepresented in the 1987 survey cannot be determined (no records of the gender of the ESA membership prior to 1991 are available).

To address a possible bias between students and non-students in the probability of returning the survey, the percentage of respondents claiming a student occupational level was compared with the percentage of student members of the society. Thirteen percent of the respondents said their occupation was "student". As of 1 July 1992, the percentage of student members of the society totalled 18%. A chi-square goodness-of-fit test comparing the frequencies of student vs. non-student respondents to the frequencies of student vs. non-student members of the society indicated that the difference is not statistically significant at the $p = 0.10$ level. Therefore, it is unlikely that there was any bias in the response rate from students vs. non-students during the 1992 survey. Membership records from the ESA Business Office indicate that students made up 15% of the membership in 1987.

The age composition of the membership is similar to that found by the 1987 study (Travis 1989). Travis reported that 73% of the membership was younger than 45, and that the majority (41%) of the members were in their late 30's and early 40's. Current results show that 69% of the respondents are younger than 45, with the highest proportion of members in the 36-40 year old range.

The median income of $40,000-$49,999 reported in this survey appears to represent an increase in the average gross annual income since the 1987 survey (Travis 1989), where the modal (and median) income was reported to be between $31,000-$40,000. The percentage of members reporting average annual income of over $50,000 (32%) has doubled since the time the 1987 survey was completed, when only 15% reported earnings greater than that amount. However, in order to compare between the studies, the Gross National Product Deflator for 1987 (Bureau of Labor Statistics) was used to convert 1991 dollars to 1987 dollars. A median income of $45,000 for 1991 is equivalent to $38,500 in 1987 dollars, and represents little or no real increase from the median income reported in the 1987 survey.

It is difficult to compare respondents' areas of expertise between the 1987 and 1992 surveys. The two surveys did not ask exactly the same questions, nor did they provide respondents with identical options for response. Respondents to the 1987 survey indicated that they would describe the area in which they actually work (in order of decreasing number of respondents) to be: (1) community ecology, (2) animal population biology, (3) environmental impact assessment, (4) empirical ecosystem studies, and (5) plant population biology (Travis, 1989). Respondents to the 1992 survey indicated that the fields in which they are actively conducting ecological research (in order of decreasing number of respondents) to be: (1) aquatic ecology, (2) community ecology, (3) population biology, (4) plant ecology, and (5) conservation biology (Table 44).

Although the employer categories used in this survey and in the 1987 survey are not identical, one can still conclude that more respondents are currently employed in higher education than in 1987. Over 60% of the respondents to the current survey report some kind of academic employment. This compares to 52% of the respondents to the 1987 survey who reported academic employment. Whether this reflects a change in the work force, a shift in the ESA membership, or a disparity in terms cannot be determined. In 1987, 18% of respondents indicated employment in government service, while in 1992 16% report employment in local, state, or national government.

7.2 STUDIES BY OTHER GROUPS

Some information in this survey can be compared to surveys recently carried out by other scientific organizations. A list of the other studies is given in Table 72. According to the results of this survey, the gender composition of the Ecological Society of America (ESA) is most similar to that of the Association of American Geographers (AAG) and the community of plant biologists, which are 75% male and 25% female (Table 73). For the United States population as a whole (USA) the ratio is 49% male to 51% female (data for the year 1989, U.S. Bureau of the Census 1991). The remaining groups have a higher percentage of males (ranging from 82% to 95%).

Table 72. Other studies used for comparison.

Study	Citation	Type of survey
United States census data	U.S. Bureau of the Census 1991	Census
American Geological Institute (AGI)	Claudy et al. 1988	Mail
American Meteorological Society (AMS)	Stephens and Kazarosian 1992	Mail
Association of American Geographers (AAG)	Association of American Geographers 1992	Dues
Society of American Foresters (SAF)	Society of American Foresters 1992	Dues
The Wildlife Society (TWS)	Brown et al. 1992	Mail
Plant biologists	Chaney et al. 1990	Mail
Systematic biologists	Celebuski and Farris 1990	Mail

Table 73. Comparison of the gender composition (in percent) of the ESA with other groups.

Gender	USA	ESA	AGI	AMS	AAG	SAF	TWS	Plant Biologists
Male	48.7	76.7	94.8	92.7	74.7	90.7	81.7	75.4
Female	51.3	23.3	5.2	7.3	25.3	9.3	18.3	24.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

When compared to the racial/ethnic makeup of the United States as a whole, all groups for which data were compared seem to be heavily weighted toward caucasians (Table 74). The percentage of caucasians ranges from 92% for the AAG to 98% for the Society of American Foresters (SAF). According to United States Census data for the year 1989, the racial/ethnic composition of the U.S. population is 84% Caucasian, 12% African American, 3% Asian/Pacific Islander, 1% Native American, and 8% Hispanic (According to U.S. Census Bureau procedures, Hispanics may be of any origin, which results in a total of greater than 100%). These data show that minorities, with the possible exception of those of Asian/Pacific Islander and Native American origin in the ESA and the American Meteorological Society (AMS), are underrepresented in the groups for which data are available.

Table 74. Comparison of the racial/ethnic composition (in percent) of the ESA with other groups. Because Hispanics can be of any racial origin, the total (not given) for the U.S. Census data is greater than 100%.

Ethnicity	USA	ESA	AGI	AMS	AAG	SAF	Plant biologists	Systematic biologists
Caucasian	84.2	93.1	96.0	93.3	92.3	97.7	92.6	96.6
Asian/Pacific	2.8	2.4	2.9	4.1	4.8	0.9		
Hispanic	8.2	2.1	0.2	1.2	1.1	0.4		
Native American	0.7	1.1	0.3	0.8	0.4	0.4		
African American	12.4	0.3	0.3	0.6	1.1	0.3		
Other		0.9	0.3			0.3		
Minorities[a]							7.4	3.4
Total		99.9	99.9	100.0	100.0	100.0	100.0	100.0

[a]The plant biology and systematic biology surveys do not break this category down any further.

The ESA appears to have the youngest membership of the four societies for which comparable age data is available. Eighty-two percent of the membership is below the age of 50 (Table 75). The Wildlife Society (TWS) is close to this figure (80%), while the American Geological Institute (AGI) reports 60% and the SAF 64%. The comparable figures for the United-States (limited to U.S. residents 20 years old or older) is that 65% of the U.S. population is below the age of 50.

Table 75. Comparison of the age distribution (in percent) of the ESA with other groups.

Age class	USA[a]	ESA	AGI	SAF	TWS
<= 30	25.6	9.7	11.8	10.4	17.3
31-40	23.2	40.5	31.2	28.1	33.9
41-50	16.4	32.2	17.3	25.4	28.9
51-60	12.4	11.3	22.0	16.2	10.3
61-70	11.6	4.4	12.7	11.2	9.6[b]
> 70	10.8	1.8	4.9	8.6	
Total	100.0	99.9	99.9	100.0	100.0

[a] Figures are percent of U.S. population 20 years old and older.
[b] Includes everyone age 64 and above.

Only two societies (AGI and SAF) reported salary data comparable to that for the ESA survey (Table 76). Sixty-three percent of SAF members make between $20,000-$50,000 annually, compared to 47% for ESA and 39% for AGI. Both ESA and AGI show a more balanced salary distribution than SAF. A higher percentage of AGI members (52%) earn greater than $50,000, compared to 33% for ESA and 23% for SAF.

Table 76. Comparison of the salary structure (in percent) of the ESA with other groups.

Salary[a]	ESA	AGI	SAF
Below $10,000	6.8		6.4
$10,000-$19,999	12.7	9.3	7.5
$20,000-$29,999	11.7	4.9	20.6
$30,000-$39,999	17.3	14.9	25.3
$40,000-$49,999	18.4	19.4	17.2
$50,000-$59,999	13.2	16.8	12.1
$60,000-$69,999	8.0	11.4	4.5
$70,000-$79,999	4.4	7.1	6.4[b]
$80,000-$99,999	4.9	8.4	
$100,000-$124,999	1.5	4.1	
$125,000-$149,999	0.5	1.1	
$150,000 and above	0.3	2.6	
Total	99.9	99.9	100.0

[a] ESA and SAF data are from 1991, while the AGI data is from 1986 (U.S. members) and 1987 (Canadian members).

[b] Includes all income greater than $70,000.

8. DISCUSSION

8.1 PROFILES OF SURVEY RESPONDENTS

Role of volunteerism. The Ecological Society of America (ESA) is a nonprofit scientific society that relies heavily on the work of numerous volunteer committees. Thus, it is instructive that 36% of respondents indicate they devote one or more days per year in service to the organization (Table 18), which most likely includes participation at the Society's week-long annual meeting. Moreover, six percent of respondents indicate that they devote six days or more to the Society's efforts, and it is this group of members that serve on committees, such as the Executive Committee, various editorial boards, Chapter Committees, Education Committee, Awards Committee, Public Affairs Committee, and Certification Board.

Employment demographics. Four percent of survey respondents indicated their primary employers are located outside North America (Table 8), while 96% indicated their primary employers are located in North America. Fifty-three percent of respondents within the United States of America cited primary employers located east of the Mississippi River (Table 9). Forty-five percent of respondents gave the location of their principal employers as urban metropolitan (Table 10).

Income. Salary comparisons by age and gender indicate that male respondents earn nearly $6,000 more per year than female respondents of the same age. When income is compared by time since highest degree and gender, males make $4,600 more per year than females who completed their education the same year. A median income of $40,000-$49,999 was reported in this survey while the average gross annual income reported by the 1987 survey (Travis 1989) was between $31,000-$40,000. In order to compare between studies, the Gross Domestic Product Deflator for 1987 (Bureau of Labor Statistics) was used to convert 1991 dollars to 1987 dollars. A median income of $45,000 for 1991 is equivalent to $38,500 in 1987 dollars, and represents little or no real increase from the median income reported in the 1987 survey. The percentage of members reporting average annual income of over $50,000 (32%) has doubled since the time the Travis survey was completed, when only 15% reported earnings greater than that amount.

Age structure. The U.S. Census Bureau reports that 65% of the U.S. population aged 20 and above is between the ages of 20 and 50. The ESA survey shows that 82% of the ESA respondents are younger than 50. Survey results suggest that ESA membership is the youngest of the four societies for which comparable age data are available. Eighty-two percent of ESA respondents are below the age of 50, slightly more than The Wildlife Society (TWS), with 80% of its members younger than 50. The American Geological Institute (AGI) reports 60% younger than 50, while the Society of American Foresters (SAF) reports 64% of its members are younger than 50 (Table 75).

Ethnic/racial composition. The ethnic/racial composition of the United States in 1989 was 80% Caucasian, 12% African American, 3% Asian/Pacific Islander, 1% Native American, and 9% Hispanic (U.S. Bureau of the Census 1991). The total is greater than 100% because the Census Bureau notes that Hispanics may be of any origin. In comparison, the racial/ethnic composition of survey respondents is 93% Caucasian, 0.3% African American, 2.4% Asian/Pacific Islander, 1.1% Native American, and 2.1% Hispanic (Table 74). The data in Table 74 show that minorities (with the possible exception of those of Asian/Pacific Islander and Native American origins) are underrepresented in the ESA and the other four professional organizations for which these data are available.

Retention. Forty-two percent of responses in Table 66 suggest that respondents would prefer to be employed as ecologists. The responses indicated that it may be more difficult for females to secure employment in the field than for males (Table 67). Seventeen percent of female respondents cite "constraints due to family circumstances" as the reason they are not employed as ecologists. Thus, it appears that if the proportion of female ecologists is to be increased, better ways are needed to combine family and job responsibilities.

8.2 ECOLOGICAL EXPERTISE OF SURVEY RESPONDENTS

Responses to the 1987 and 1992 surveys. Respondents to the 1987 survey indicated that they would describe the area in which they actually work (in order of decreasing number of respondents) to be: (1) community ecology, (2) animal population biology, (3) environmental impact assessment, (4) empirical ecosystem studies, and (5) plant population biology (Travis, 1989). Results of the 1992 survey indicated that the fields in which respondents are actively conducting ecological research (in order of decreasing number of respondents) are: (1) aquatic ecology, (2) community ecology, (3) population biology, (4) plant ecology, and (5) conservation biology (Table 44).

Part of the difficulty in comparing the two surveys is that the two survey instruments did not ask exactly the same questions (Appendices A and B), nor did they provide respondents with identical options for response. However, both surveys indicate that the ESA membership, as a whole, is strong in the areas of community ecology and population biology. If the next ESA membership survey utilizes the same field descriptions used in 1992, more direct comparisons of respondents' capabilities will be possible.

Fields contributing to SBI. It is difficult to determine how well funded the three areas (global change, biological diversity, and sustainable ecological systems) presented as research priorities in **The Sustainable Biosphere Initiative: an ecological research agenda** (SBI; Lubchenco, et al., 1991) have been over the past two years. Three factors that may contribute to this difficulty are: (1) SBI is new enough that respondents have not begun to think of their research in terms of these categories, (2) SBI is new enough that federal agencies have not developed programs to fund research in these specific categories, and (3) each of the SBI priority areas is interdisciplinary, and thus many research areas listed in Table 52 contribute to a general understanding of the SBI priorities. In fact, work in areas such as geology, paleoecology, sustainable agriculture, ecological modeling, biogeochemistry, environmental education, landscape ecology, nutrient fluxes, agroforestry, environmental law, and agronomy all may contribute to furthering the objectives of SBI.

As noted in Section 5.3, it is encouraging that over 400 courses taught by respondents (Table 50) can be assumed to foster consideration of questions raised in the SBI report (Lubchenco et al. 1991). Thus, future surveys of ESA members may demonstrate greater concentrations in the SBI priority areas.

8.3 FUNDING FOR ECOLOGICAL RESEARCH

Respondents cite over 300 different sources that support their ecological research (Table 55). In the United States, the National Science Foundation funded 16% of the total number of grants listed, universities fund 13% of grants listed, state agencies fund 11% of grants listed, foundations fund 9% of grants listed, and the U.S. Department of the Interior (which includes the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the National Park Service) funds 8% of grants listed. These five sources of support account for 57% of grant support cited by survey respondents based in the United States. In addition, the 308 respondents based outside of the United States included 119 funding sources for their research.

A recent study undertaken by staff of the American Association for the Advancement of Science (AAAS) analyzed federal funding for environmental research and development (Gramp et al. 1992) by examining the budgets of more than twenty United States agencies. The AAAS report cautions "that their data represent best estimates of funding trends and should not be regarded as precise figures. The AAAS study based their funding estimates on data published in agency budgets and in National Science Foundation (NSF) statistical reports. As used in the AAAS report, the term 'environmental Research & Development (R&D)' includes programs in the following four areas:

- environmental sciences, including (a) environmental life sciences, such as environmental biology, forestry, marine biology, and related fields, and (b) physical environmental sciences, such as oceanography, geology, and atmospheric sciences, excluding extraterrestrial research;
- engineering and other sciences related to the impacts of natural and anthropogenic activities on the environment, including prevention, control, amelioration, and regulation;
- social sciences related to the environment, such as environmental economics, and social sciences research on cultural and institutional factors affecting sustainable development, pollution prevention, adaptation to global change, etc.; and
- information and data sciences related to the environment, such as computer sciences and specialized information management R&D identified in agency budgets."

Federal expenditures for environmental R&D, as defined above, are estimated to total approximately $4.5 billion in FY 1992 (Gramp et al. 1992). Under the heading of environmental sciences R&D are $3.1 billion worth of programs ranging from the government-wide $1.1 billion Global Change Initiative to the Bureau of Land Management's $0.4 million effort on vegetative diversity. AAAS estimates that federal support for engineering and other R&D related to environmental impacts totals some $1.2 billion, mainly for projects associated with particular sectors of the economy (such as energy, defense, and agriculture), but also for pollution prevention. The government devotes at least $0.2 billion to environmental information and data systems R&D, ranging from geographic data R&D to information systems needed to manage environmental and ecological data generated by spaceborne remote sensing missions. Finally, although it is not easy to identify funding for environmental R&D in the social sciences from budget documents, AAAS estimates that at least $40 million are available for such research overall, addressing such issues as the economic and social effects of global change, the economics of natural resource management, and social and economic institutions affecting the environment in developing nations (Gramp et al. 1992).

A key finding of the AAAS study is that the share of academic institutions in environmental R&D is less than a quarter of federally-funded R&D, and thus represents a smaller proportion than the share of academic institutions in other nondefense R&D (Gramp et al. 1992). Since 60% of the ESA respondents are employed at academic institutions, it is this share of environmental R&D that is available to them for research support.

The two studies are different in that AAAS reviewed budget information from over 20 U.S. agencies, while ESA requested information from individual members based in the U.S. as well as in 65 other nations. In addition to the 20 U.S. agencies reviewed by AAAS, ESA respondents note over 300 sources of support. Such diversity of funding sources would seem to indicate a very resourceful group of scientists. Given the focus on interdisciplinary approaches to environmental problem-solving in the SBI report (Lubchenco et al. 1991), not only will continued resourcefulness be necessary, but higher funding levels will also be required.

Another difference between the two studies is that AAAS used a broad definition of "environmental research," while the ESA survey relied on survey respondents' denfinition of "ecological research." Undoubtedly, not all ecological research is undertaken by ESA members. However, it seems likely that all U.S. federally-funded ecological research is reported in the AAAS study. To meet the financial needs of the SBI (Lubchenco et al. 1991) will require greater collaboration between federal agencies and academic researchers (along with many other interested partners) to answer the complex challenges facing the scientific community and society as a whole as to how to balance economic development with effective management of environmental resources.

9. CONCLUSIONS AND RECOMMENDATIONS

Needs for ecological education. Education is one of the most important activities that the Ecological Society of America must actively pursue. The goal of any ESA education program must include the production of more and better trained ecologists as well as a better informed citizenry. Over the last 40 years, the percentage of elementary/secondary school teachers within ESA (Table 59), has decreased from 14% prior to 1951 to 0.4% in 1991-92. During the same time span, respondents note an increase from 42% employment in four-year colleges and universities prior to 1951, to 58% in 1991-92.

While 32% of respondents indicate that a college professor was the single most instrumental factor in kindling respondents' interest in ecology (Table 24), nearly 60% of ESA members became interested in ecology prior to entering an undergraduate college program (Table 23). Further efforts to heighten and sustain pre-college student interest and awareness of ecological principles, especially among minorities, seems warranted. In addition, further development within ESA of appropriate, attractive, and informative materials, (especially for grades K-6) and wide distribution of those materials appears critical for achieving a well-informed public on ecological topics.

Recruitment. Since early influences are most important (Tables 23 and 24), there is a need to develop programs to encourage and support ecological interests at a young age. Given that 45% of respondents indicate their employers are located in urban metropolitan areas, and given the increasing rate of urbanization throughout the world, it appears particularly critical to encourage young people to pursue programs in urban ecology, and to address questions pertaining to the sustainability of cities.

Retention. This survey has highlighted some gender issues which seem critical in retaining female ecologists (Tables 14, 41, and 66). These results corroborate an AIBS study (Blockstein 1990) which noted that women in science face many barriers, from the balancing of parental and professional activities to the lower salaries at all levels of professional experience. As has recently been recounted (Massey 1992) for minority students, mentoring is critical for both female and minority students at every step in their educational development. Thus, it is important for educators at all levels to be effective mentors.

Recommendations. (1) The federal agencies, and in particular, the National Science Foundation, need to work on programs to interest minorities to study ecology. A survey of minority recruitment programs in the sciences, as well as in other disciplines (e.g. humanities, engineering), would be instructive to determine which have been successful in the past, and to recommend and implement a program that could be successful for ecological and environmental sciences.

(2) Programs should be targeted (for example, at future ESA annual meetings) for educators in elementary and secondary schools to share their needs for ecological information and to interact with researchers in the discipline.

(3) Future surveys of ESA members should include some of the same questions and response choices from the 1992 survey, so that direct comparisons can be made. Utilization of identical questions in subsequent surveys will allow ESA to document trends over the coming years. In addition, inclusion of non-U.S. based ESA members in survey development is desirable.

(4) Efforts must continue to connect well-qualified ecologists with appropriate job opportunities. Results of this survey indicate that there are individuals who would have preferred to be employed as ecologists, but are not. It will do little good to initiate programs to attract ecologists to the field unless there are enough jobs for them.

(5) Attractive and informative materials (especially for general audiences) are needed in order to achieve an ecologically-literate public.

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APPENDIX A. TEXT OF THE 1992 SURVEY QUESTIONNAIRE

The Ecological Society of America

H. RONALD PULLIAM, President
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University of Georgia
Athens, GA 30602
(404) 542-2968

February 18, 1992

Dear Fellow ESA Member:

I urge you to take a few minutes to answer the attached questions carefully. The answers will be of value not only to ESA, but also to representatives of federal agencies and private foundations. I recognize that some of the information requested is personal; however, let me assure you that all survey responses will remain confidential. The results will be tabulated using a machine-readable format, and the more responses we receive, the better we shall understand our own ecological community.

One area often identified as a major concern is the potential lack of adequate scientific and technical personnel to address adequately critical research questions. Therefore, the ESA Public Affairs Office is conducting a survey of ESA members to determine current demographics. This survey has four objectives: (a) to determine ethnic and gender diversity of ecologists and to compare it with the demographic composition of the workforce; (b) to determine patterns of earned doctorates by sudiscipline of ecology over the past 30 years; (c) to catalog ecological science capabilities according to problem area (e.g. how many scientists are trained to study ecological complexity of global warming); and (d) to analyze current employment patterns of ecologist.

Let me thank you in advance for taking the time to complete this survey. I am personally very eager to see the results, and am grateful to you for providing information about our own career development.

Sincerely,

H. Ronald Pulliam
President
Ecological Society of America

PROFILES OF ECOLOGISTS

Survey for the Ecological Society of America

Since the ESA promises to keep survey responses confidential, questions 1-3 appear on a separate cover sheet, and responses to these questions will be stored separately. Please note that in a pre-test of the survey instrument, the questions took 10 to 15 minutes to complete. If you are feeling pressed for time, please at least answer questions 1-3 and 32-50. Return the completed answer sheets (pages 2, 3 and 4) to the Public Affairs Office in the enclosed pre-addressed envelope by 15 April 1992.

ANSWER SHEET

1. Name (Last, first, middle)

____

2. Mailing Address (Needed only if you have changed your address since 1 January 1992)

____

____

____

____

____

3. Please give the name of your principal employer (company, organization, postdoctoral institution, etc. or, if self-employed, write "self") and your place of employment at present.

Name of employer

____

Address of employer

____

____

____

____

ANSWER SHEET

Please write the letter(s) or number(s) corresponding with best answer in the spaces provided.

4. ____________________

5. ____________________

6. Education summary:

I. Institution awarding degree		II. Year degree granted	III. Field(s) of study		IV. Primary form of support	V. Primary source of support
			Major	Minor		
a. Bachelor's degree						
b. Master's degree						
c. Doctoral degree						
d. Other (please specify)						

7. ____________________
8. _____
9. _____
10. _____

11. ____________________
12. _____
13. _____

14. ____________________
15. 1_____; 2_____; 3_____

16. ____________________

17. Employment history:

Time period	Primary employment category (use code list from question 16)
1991-92	
1986-90	
1981-85	
1976-80	
1971-75	
1966-70	
1961-65	
1956-60	
1951-55	
pre-1951	

ANSWER SHEET

Please write the letter(s) or number(s) corresponding with best answer in the spaces provided.

18. Primary ____; Secondary ____

19. ________________

20. ____

21. ________________

22. ____

23. ____

24. ____

25. ____

26. ____

27. ________________

28. ____

29. ____ (year = ____)

30. ____

31. ________________

32. ________________

33. ____

34. Grant applications:

Source of Support (from list of funding agencies on page 16)	Amount Requested (from list of funding amounts on page 16)	Brief Description (use code letter from field list on page 15)	Status (funded = F, not funded = N, undecided = U)

35. ________________

36. ________________

37. ____

38. ____

39. ____

40. ________________

41. ____

42. ____

43. (MM/DD/YY) ___/___/___

44. ____

45. ____

46. ____

47. ________________

48. ________________

49. ____

50. ____

. . **THANK YOU VERY MUCH FOR TAKING THE TIME TO COMPLETE THIS SURVEY**

QUESTIONNAIRE

Please write your answers clearly on the answer sheets provided.

4. When did you first become interested in ecology?

a) Pre-kindergarten	e) Summer camp
b) K-6 grade	f) Undergraduate course
c) 7-8 grade	g) Graduate course
d) 9-12 grade	h) Other (please specify in the space provided)

5. Who or what was most instrumental in kindling your interest in ecology?

a) Parent	g) High school teacher
b) Grandparent	h) College professor
c) Other relative	i) Ecological literature
d) Friend	j) Environmental organization
e) Scouting leader/program	k) Growing up in a rural area
f) Elementary teacher	l) Other (please specify in the space provided)

6. Education Summary. In the table on page 3, please supply the following information for all colleges and universities from which you have earned degrees. Use the list of colleges and universities given on pages 11-14 for column I. Use the list of ecological fields given on page 15 for column III. Use the list of types of financial support given on page 16 for column IV. Use the list of funding agencies given on page 16 for column V.

7. From what department did you receive your highest degree?

a) Biology	i) Geography
b) Botany	j) Geology
c) Chemistry	k) Mathematics
d) Ecology	l) Physics
e) Engineering	m) Wildlife/fisheries management
f) Entomology	n) Zoology
g) Environmental science	o) Other (please specify in the space provided)
h) Forestry	

IF YOU HAVE NOT ENTERED A GRADUATE DEGREE PROGRAM, SKIP TO QUESTION 13.

8. Was support critical to your entering into graduate study?

a) Yes	b) No

9. Was support (or lack of it) critical to the progress of your graduate studies?

a) Yes	b) No

10. If you began a graduate program, but did not complete the degree, which response most closely reflects your reasons for leaving the program?

   a) Received job offer that paid much more than graduate stipend
   b) Major professor did not provide adequate guidance
   c) Personal considerations

11. After you received your highest degree, did you:
   a) Hold a post doc appointment
   b) Enter a career-track position
   c) Accept a temporary position
   d) Serve as a volunteer
   e) Other (please specify in the space provided)

12. How many post doc appointments have you held?

- a) Not applicable (have not received a Ph.D.)
- b) None
- c) One
- d) Two
- e) Three
- f) More than three

13. Did you describe yourself as an ecologist on 15 February 1992?

- a) Yes
- b) No

14. Which answer most closely describes why you are a member of the Ecological Society of America?

- a) Need for networking with ecological professionals
- b) Multidisciplinary research includes collaboration with ecologists
- c) Believe important advances are being made in ecology
- d) Opportunity for career advancement/change
- e) Academic training
- f) Personal commitment to environmental stewardship
- g) Receive ESA journals
- h) Other (please specify in the space provided)

15. Which of the fields (from the list on page 15) do you consider to be your current area of expertise? Choose up to three fields and rank them in order of skill level (1 = greater skill, 3 = lesser skill).

16. Which category best describes your principal employer?

- a) Self-employed
- b) Junior college, 2-yr college, or technical institute
- c) 4-yr college
- d) Medical school (including university affiliated hospital or medical center)
- e) University, other than medical school
- f) Elementary, middle, or secondary school
- g) Business or industry
- h) Trade association/professional association
- i) State or local government
- j) National government, civilian employee
- k) Military service
- l) Private foundation
- m) Consulting firm
- n) Historical organization
- o) National laboratory
- p) Research center/institute
- q) Museum
- r) Environmental nonprofit organization
- s) Other nonprofit organization
- t) United Nations organization
- u) Other (please specify in the space provided)

17. Using the list of employment categories in question 16, please summarize your employment history in the table on page 3, indicating type of full-time positions you have held since completing your highest degree.

18. From the activities listed below, select your primary and secondary work activities for your principal job, in terms of time devoted during a typical year. Enter the appropriate code (a–v).

a) Teaching
b) Basic Research
c) Applied Research
d) Development of equipment, products, and systems
e) Writing
f) Editing
g) Statistical analysis
h) Management/administration of education programs
i) Management/administration of R & D
j) Management/administration of programs other than education or R & D
k) Field work
l) Consulting
m) Operations — production, maintenance, construction
n) Information management
o) Sales, marketing, public relations
p) Survey/forecasting work
q) Computer applications
r) Institutional fundraising
s) Conservation
t) Policy development
u) Regulatory affairs
v) Other (please specify in the space provided)

IF YOUR PRIMARY ACTIVITY IN QUESTION 18 DID INCLUDE OPTIONS 1, 2, OR 3, THEN SKIP TO QUESTION 21.

19. If your primary activity in question 18 does not include options 1, 2, or 3, which response most closely reflects why you have a job entailing something other than teaching or research?
a) Not applicable
b) Better pay
c) More attractive career options
d) Preferred geographic location
e) Constraints due to family circumstances
f) Position in field of expertise not available
g) Change in career/professional interests
h) Never wanted to teach or conduct research
i) Other (please specify in the space provided)

20. Would you prefer to be teaching or doing research as your primary activity?
a) Yes b) No

21. If you began your career as an ecologist, but did not consider yourself to be one as of 15 February 1992, what factors contributed to your leaving the field?
a) Not applicable
b) Better pay
c) More attractive career options
d) Preferred geographic location
e) Constraints due to family circumstances
f) Position in field of expertise not available
g) Change in career/professional interests
h) Other (please specify in the space provided)

22. Would you prefer to be working as an ecologist?
a) Yes b) No

23. The recent report of the Oversight Review Board of the National Acid Precipitation Program defined applied research as "inquiry aimed at discovering useful guidelines for management of natural resources, business enterprises, social and governmental institutions, and the services needed by our society." Given this definition, do you consider the work you do as being applied?
a) Yes b) No

24. Would you prefer to do more applied work in the future?
   - a) Yes
   - b) No

25. Given your current circumstances, what is the probability that you will be in the field of ecology in 5 years?
   - a) Excellent
   - b) Good
   - c) Fair
   - d) Poor

QUESTIONS 26 AND 27 ASK FOR A DESCRIPTION OF THE GEOGRAPHIC LOCATION OF YOUR EMPLOYER AS OF 15 FEBRUARY 1992. PLEASE ANSWER BOTH QUESTIONS.

26. Which best describes the type of community in which your employer is located?
   - a) urban metropolitan
   - b) suburban
   - c) rural

27. If in North America (Canada, Mexico, United States) please give the state or province in which your employer is located. If outside North America, please give the country in which your employer is located.

28. Indicate your occupational level as of 15 February 1992:
   - a) Senior Manager/Director/Dean/Educational Department Head/etc.
   - b) Senior Professional/Professor/Associate Professor/Middle Manager/etc.
   - c) Professional/Assistant Professor/Assistant Superintendent/etc.
   - d) Junior Professional/Instructor/Supervisor/etc.
   - e) Technician/Paraprofessional/etc.
   - f) Student

29. If you are employed by an institution of higher education, what is your tenure status?
   - a) Tenured (please indicate the year it was granted on the answer sheet)
   - b) Not tenured, in tenure track
   - c) Not tenured, not in tenure track
   - d) Tenure not applicable
   - e) Not employed at an institution of higher education

30. During the past 2 years, have you published any scholarly or professional writing (or had it accepted for publication) in an ecologically-related field?
   - a) Yes
   - b) No (skip to Question 32)

31. If you answered yes to Question 30, please indicate the type(s) of publications.
   - a) Book or monograph (author or coauthor)
   - b) Book or monograph (editor or coeditor)
   - c) Chapter in a scholarly book
   - d) Article in a refereed journal
   - e) Book review in a refereed journal
   - f) Article in newspaper/magazine
   - g) Paper in non-refereed proceedings other than book or journal
   - h) Paper in refereed proceedings other than book or journal
   - i) Technical report
   - j) Other (please specify in the space provided)

32. If you are actively engaged in ecological research, please check the areas (from the list on page 15) that most closely describe the nature of this work. You may choose up to 3 fields.

1___
2___
3___
4___ Research other than ecological, please specify in space provided
5___ Not engaged in research

33. In the last two years, have you applied for a grant to support research in the field of ecology?

a) Yes	b) No

34. If you answered yes to question 33, please describe the nature of these applications in the table on page 4.

35. If you have taught within the last two years, please indicate the subject matter using the list on page 15. You may include up to five subjects.

36. Please indicate other professional societies in which you are a member, using the list on page 17.

37. How many days per year do you contribute to these organizations?

a) None
b) One
c) Two to five
d) Six to ten
e) 11 to 15
f) More than 15

38. How many days per year do you contribute to the Ecological Society of America?

a) None
b) One
c) Two to five
d) Six to ten
e) 11 to 15
f) More than 15

39. Are you involved in state or local government?

a) Yes	b) No

40. If you answered yes to question 39, please indicate in what manner(s) you are involved:

a) Conservation Commission
b) Planning Board
c) Zoning Commission
d) Regional Watershed Council
e) Regional Planning Commission
f) Environmental Political Action Committee
g) Other (please specify in the space provided)

41. Does your department/program anticipate creating a new ecological position(s) in the next five years?

a) Yes	b) No

42. Does your department/program anticipate eliminating an ecological position (s) in the next five years?

a) Yes	b) No

43. Date of Birth (Please fill in spaces on the answer sheet)

44. Marital Status

a) Married	b) Single

45. Number of children

a) None
b) One
c) Two
d) Three
e) More than three

46. Gender:
- a) Male
- b) Female

47. Citizenship:
- a) U.S., native born
- b) U.S., naturalized
- c) Non–U.S., permanent U.S. resident
- d) Non–U.S., temporary U.S. resident
- e) Canada
- f) Mexico
- g) Other (please specify in the space provided)

48. What is your ethnic origin/racial background?
- a) Native American
- b) Asian / Pacific Islander
- c) African American
- d) Caucasian
- e) Hispanic
- f) Other (please specify in the space provided)

49. Please indicate your gross annual income, including royalties and consulting fees, for 1991 (in U.S. dollars):
- a) Below $10,000
- b) $10,000 - $19,999
- c) $20,000 - $29,999
- d) $30,000 - $39,999
- e) $40,000 - $49,999
- f) $50,000 - $59,999
- g) $60,000 - $69,999
- h) $70,000 - $79,999
- i) $80,000 - $89,999
- j) $90,000 - $99,999
- k) $100,000 - $124,999
- l) $125,000 - $149,999
- m) $150,000 - $174,999
- n) $175,000 and above

50. Please indicate your total household income for 1991 (in U.S. dollars):
- a) Below $10,000
- b) $10,000 - $19,999
- c) $20,000 - $29,999
- d) $30,000 - $39,999
- e) $40,000 - $49,999
- f) $50,000 - $59,999
- g) $60,000 - $69,999
- h) $70,000 - $79,999
- i) $80,000 - $89,999
- k) $90,000 - $99,999
- l) $100,000 - $124,999
- m) $125,000 - $149,999
- n) $150,000 - $174,999
- o) $175,000 and above

THANK YOU VERY MUCH FOR TAKING THE TIME TO COMPLETE THIS SURVEY

CSS Code List

See instructions for question 6(p.5) before using this list.

ALABAMA

1003 Alabama A & M University
1006 Alabama State University
Auburn University
1005 —Auburn
1036 —Montgomery
3231 Bessemer State Tech. College
1064 Birmingham-Southern College
3331 C. A. Fredd State Tech. College
1262 Gadsden State Community Coll.
1303 Huntingdon College
1736 Jacksonville State University
1352 Jefferson State Comm. College
1737 Livingston University
1468 Miles College
1515 Mobile College
1586 Oakwood College
1302 Samford University
1723 Southeastern Bible College
1733 Spring Hill College
1739 Stillman College
1800 Talladega College
1738 Troy State University, Troy
1813 Tuskegee University
The University of Alabama:
1856 —Birmingham
1032 —School of Dentistry
1992 —School of Medicine
1990 —School of Optometry
1854 —Huntsville
1830 —Tuscaloosa
1004 University of Montevallo
1735 University of North Alabama
1880 University of South Alabama

ALASKA

0276 **Alaska Commission on Postsecondary Education**
4201 Alaska Pacific University
4224 Association Village Council Presidents
4373 Kenai Peninsula College
4509 Matanuska-Susitna Comm. Coll.
4498 St. Herman's Theological Seminary
4742 Sheldon Jackson College
8797 Tlingit and Haida Central Council
University of Alaska:
4896 —Anchorage
4866 —Fairbanks
4897 —Southeast

ARIZONA

4007 Arizona State University
4013 Arizona Western College
4122 Central Arizona College
7347 Chandler-Gilbert Comm. Coll. Ctr.
4097 Cochise College
DeVry Institute of Technology:
4277 —Continuing Students
0370 —New/Transfer Students
4297 Eastern Arizona College
4305 Embry-Riddle Aero. Univ.
4338 Glendale Community College
4331 Grand Canyon University
4513 Mesa Community College
4495 Mohave Community College
4550 Navajo Community College
4006 Northern Arizona University
4606 Phoenix College
7719 Phoenix Institute of Technology
4623 Pima Community College
4631 Prescott College
4904 Rio Salado Community College
4755 Scottsdale Community College
4734 South Mountain Comm. College
7903 Universal Technical Institute
4832 University of Arizona
4996 Yavapai College
4721 —Verde Campus

ARKANSAS

6009 Arkansas College
6011 Arkansas State University
6267 Harding University
6321 John Brown University
University of Arkansas:
6866 —Fayetteville
6004 —Pine Bluff
6012 University of Central Arkansas

CALIFORNIA

4213 Academy of Art College
4002 Allan Hancock College
7024 American Academy of Dramatic Arts, West
4715 American Coll. for the Applied Arts
7005 American Conservatory Theatre
4216 American Film Institute—Center for Advanced Film Studies
4004 American River College
4005 Antelope Valley College
Antioch University:
7032 —Marina Del Rey
7586 —Santa Barbara
4009 Art Center College of Design
7164 Art Inst. of Southern California
4596 Azusa Pacific University
4015 Bakersfield College
4020 Barstow College
4021 Bethany College
4017 Biola University
4236 Brooks College
4228 Brooks Inst. of Photo. Art & Science
4239 Bryan Coll. of Court Reporting
4226 Butte College
4084 Cabrillo College
4094 California Baptist College
4031 California Coll. of Arts & Crafts
4032 California Coll. of Podiatric Med.
7230 California Culinary Academy
5221 California Family Study Center
4049 California Institute of the Arts
4807 California Inst. of Integral Studies
4034 California Inst. of Technology
4088 California Lutheran University
4035 California Maritime Academy
California Sch. of Professional Psych.:
4129 —Alhambra
4128 —Berkeley-Alameda
4148 —Fresno
4142 —San Diego
California State Universities:
4110 —Bakersfield
4048 —Chico
4098 —Dominguez Hills
4312 —Fresno
4589 —Fullerton
4011 —Hayward
4345 —Humboldt
4389 —Long Beach
4399 —Los Angeles (CSUC)
4707 —Northridge
4082 —Pomona (Polytechnic)
4671 —Sacramento
4099 —San Bernardino
4682 —San Diego
4684 —San Francisco
4687 —San Jose
4038 —San Luis Obispo (Polytechnic)
4824 —San Marcos
4723 —Sonoma
4713 —Stanislaus
4802 California Western School of Law
4109 Canada College
4083 Cerritos College
4027 Cerro Coso Comm. College
4725 Chabot College
4046 Chaffey Community College
4047 Chapman College
8301 Charles R. Drew Univ. of Med. & Sci.
4069 Christ College, Irvine
4150 Christian Heritage College
4051 Citrus College
4052 City College of San Francisco
4053 Claremont Graduate School
4054 Claremont McKenna College
7182 Cleveland Chiropractic College
4086 Coastline Community College
4057 Cogswell Polytechnical College
4132 Coleman College
4118 College of Alameda
4117 College of the Canyons
4085 College of the Desert
College of Marin:
4361 —Indian Valley Campus
4061 —Marin Campus
4063 College of Notre Dame
8550 Coll. of Osteopathic Med. of the Pacific
4100 College of the Redwoods
4070 College of San Mateo
4071 College of the Sequoias
4087 College of the Siskiyous
4108 Columbia College
7213 Columbia College—Hollywood
4078 Compton Community College
4804 Condie Coll. of Bus. & Tech.
4943 Contra Costa College
4121 Cosumnes River College
4126 Crafton Hills College
4101 Cuesta College
4252 Cuyamaca College
4104 Cypress College
8279 Daniel Freeman Hosp. Paramedic Sch.
4286 De Anza College
DeVry Institute of Technology:
4799 —Continuing Students
0366 —New/Transfer Students
4295 Diablo Valley College
4284 Dominican Coll. of San Rafael
4296 East Los Angeles College
4302 El Camino College
4275 Empire College
4273 Evergreen Valley College
Fashion Inst. of Design & Merchandising:
8663 —Costa Mesa
4457 —Los Angeles
4066 —San Diego
4461 —San Francisco
4460 —Sherman Oaks
4318 Feather River Comm. Coll. Dist.
4316 Fielding Institute
4315 Foothill College
4311 Fresno City College
4616 Fresno Pacific College
4313 Fuller Theological Seminary
4314 Fullerton College
4678 Gavilan College
4327 Glendale Community College
4329 Golden Gate University
4436 Golden State Business College
4339 Golden West College
4334 Grossmont College
4340 Hartnell College
4341 Harvey Mudd College
Heald Colleges/Institutes:
4145 —Fresno (4C's College)
4452 —Hayward (Business)
0468 —Hayward (Technology)
4470 —Martinez (Technology)
4451 —Oakland (Business)
4453 —Rancho Cordova (Business)
4270 —Rancho Cordova (Technology)
4637 —Rohnert Park (Business)
4458 —San Francisco (Business)
4343 —San Francisco (Technology)
4459 —San Jose (Business)
7434 —San Jose (Technology)
4140 —Stockton (Business)
4462 —Walnut Creek (Business)
4445 Hollywood Scriptwriting Institute
4059 Holy Names College
4346 Humphreys College
4358 Imperial Valley College
ITT Technical Institute:
4629 —Buena Park
4975 —Carson
9638 —La Mesa
3835 —Sacramento
8224 —San Bernardino
4643 —Van Nuys
9475 —West Covina
4357 Jewish Vocational Service
4365 John F. Kennedy University
4371 Kelsey-Jenny College
4655 King's River Comm. College
3695 La Jolla Academy
4380 La Sierra University
4420 Lake Tahoe Community Coll.
4406 Laney College
4383 Lassen College
4527 Life Bible College
3401 Life Chiropractic College West
4062 Loma Linda University
4388 Long Beach City College
4391 Los Angeles City College
4393 Los Angeles Coll. of Chiropractic
4405 Los Angeles County Medical Center School of Nursing
4395 Los Angeles Harbor College
4404 Los Angeles Mission College
4398 Los Angeles Pierce College
4409 Los Angeles Southwest College
4400 Los Angeles Trade-Tech. Coll.
4401 Los Angeles Valley College
4396 Los Medanos College
4403 Loyola Marymount University
4397 Loyola University Sch. of Law
4515 Marymount College
4517 Mendocino College
4483 Menlo College
4500 Merced College
4523 Merit College, Van Nuys
4502 Merritt College, Oakland
4485 Mills College
4582 Mira Costa College
7587 Mission College, Santa Clara
4486 Modesto Junior College
4507 Monterey Inst. of Int'l Studies
4490 Monterey Peninsula College
4512 Moorpark College
Mount Saint Mary's College:
4493 —Chalon Campus
4520 —Doheny Campus
4494 Mount San Antonio College
4501 Mount San Jacinto College
4468 Musicians' Institute
4530 Napa Valley College
National Education Center:
7783 —Sawyer Campus
4753 —Skadron College of Business
9013 National Hispanic University
4557 National University
4555 New College of California:
7655 —Law
4540 Northrop University
4581 Occidental College
4579 Ohlone College
4584 Orange Coast College
4394 Otis/Parsons Art Institute
4591 Oxnard College
4614 Pacific Christian College
4638 Pacific Grad. Sch. Psych.
4612 Pacific Oaks College
4600 Pacific Union College
4561 Palmer College Chiropractic, West
4603 Palo Verde College
4602 Palomar College
4604 Pasadena City College
4620 Patten College
Pepperdine University:
4326 —Los Angeles Campus
4630 —Malibu Campus
8159 —School of Law
Phillips Junior College:
[illegible] —Condie Campus
4548 —Northridge Campus
4619 Pitzer College
4605 Point Loma Nazarene College
4607 Pomona College
4608 Porterville College
4689 Rancho Santiago College
4663 Rio Hondo Comm. College
4658 Riverside Comm. College
4670 Sacramento City College
4747 Saddleback College
4675 Saint Mary's Coll. of California
4750 Samuel Merritt College of Nursing
4679 San Bernardino Valley College
4681 San Diego City College
7547 San Diego Community College, Continuing Education Centers
4735 San Diego Mesa College
4728 San Diego Miramar College
4873 San Fernando Valley Coll. of Law
4036 San Francisco Art Institute
4722 San Francisco Comm. Coll. Centers
4744 San Francisco Conserv. of Music
4706 San Joaquin Delta College
4756 San Jose Christian College
4686 San Jose City College
4690 Santa Barbara City College
4851 Santa Clara University
4691 Santa Monica College
4692 Santa Rosa Junior College
4347 Saybrook Institute
4693 Scripps College
4696 Shasta College
4697 Sierra Community College
4638 Simpson College, Redding
4746 Skyline College
4930 Solano Community College
4701 Southern California Coll., Costa Mesa
7904 Southern California College of Chiropractic
4392 Southern California College of Optometry, Fullerton
7829 Southern California Inst. of Architecture
4726 Southwestern College
4703 Southwestern Univ. Sch. of Law
4704 Stanford University:
7832 —School of Law
4758 —School of Medicine
4820 Taft College
44.1 The Master's College
4828 Thomas Aquinas College
4039 United States Internat'l Univ.
University of California:
4833 —Berkeley, Undergraduate
4908 —Berkeley, Graduate, Law, Optometry
4834 —Davis
4139 —Grad. Sch. of Management
4902 —School of Law
4886 —School of Medicine
4818 —Veterinary Medicine
4859 —Irvine
4884 —School of Medicine
4837 —Los Angeles (UCLA)
4890 —School of Dentistry
8818 —School of Management
4879 —School of Medicine
9805 —Univ. Extension
4839 —Riverside
4836 —San Diego
4883 —Medicine
4840 —San Francisco, Allied Health Professions
7908 —Dentistry
4885 —Medicine
7892 —Nursing
7893 —Pharmacy
7894 —Physical Therapy
4342 —San Francisco, Hastings College of Law
4835 —Santa Barbara
4860 —Santa Cruz
4876 University of Judaism
4381 University of La Verne
4065 University of the Pacific:
7895 —McGeorge School of Law
4892 —School of Dentistry
4449 —School of Physical Therapy
4848 University of Redlands:
4251 —Whitehead Center
4849 University of San Diego:
4891 —School of Law
4850 University of San Francisco:
7902 —Law
4852 Univ. of Southern California:
7898 —Dental Hygiene, Junior
4893 —School of Dentistry
4492 —School of Law
4882 —School of Medicine
7900 —School of Pharmacy
4708 —School of Physical Therapy
4918 —Other Grad. Studies
4872 University of West LA School of Law
4931 Ventura College
4932 Victor Valley College
7711 Vista College
3313 Watterson College, Oxnard Campus
4970 West Coast Christian College
4966 West Coast University
4056 West Hills Community College
4964 West Los Angeles College
4958 West Valley College
Western State University College of Law:
4969 —Fullerton
4973 —San Diego
4950 Westmont College
4952 Whittier College
4028 —School of Law
4955 Woodbury University
4981 World College West
4965 Wright Institute, Berkeley
4994 Yuba College

COLORADO

4001 Adams State College
4659 Colorado Christian University
4072 Colorado College
7150 Colorado Institute of Art
4073 Colorado School of Mines
4075 Colorado State University
4310 Fort Lewis College
4505 Metropolitan State Coll. of Denver
4656 Regis University
University of Colorado:
4841 —Boulder
4874 —Colorado Springs
4875 —Denver
4842 University of Denver
4074 University of Northern Colorado
4611 University of Southern Colorado
4946 Western State Coll. of Colorado

CONNECTICUT

3001 Albertus Magnus College
3656 Asnuntuck Community College
3121 Briarwood College
3093 Bridgeport Engineering Institute
3104 Bridgeport Hospital Sch. of Nrsg.
3898 Central Connecticut State Univ.
3284 Connecticut College
3966 Eastern Connecticut State Univ.
3390 Fairfield University
3421 Greater Hartford Comm. College
3425 Greater New Haven St. Tech Coll.
3431 Hartford College for Women
3768 Hartford State Technical College
3446 Housatonic Community College
3544 Manchester Community College
3550 Mattatuck Community College
3551 Middlesex Community College
3528 Mitchell College
3558 Mohegan Community College
3652 Northwestern Conn. Comm. Coll.
3678 Norwalk Community College
3675 Norwalk State Tech. College
3556 Ona M. Wilcox Sch. of Nursing
3699 Paier College of Art
3716 Quinebaug Valley Comm. Coll.
3712 Quinnipiac College
3780 Sacred Heart University
3781 Saint Francis Hosp. Sch. of Nrsg.
3754 Saint Joseph College
3798 Saint Mary's Hosp. Sch. of Nrsg.
3789 Saint Vincent's Med. Ctr. Sch. of Nrsg.
3792 South Central Community Coll.
3662 Southern Connecticut St. Univ.
9905 Technical Careers Institute
3698 Teikyo Post University
3654 Thames Valley State Tech. Coll.
3899 Trinity College
3897 Tunxis Community College
3914 University of Bridgeport
3915 University of Connecticut:
7867 —School of Law
7868 —School of Social Work
3436 University of Hartford
3663 University of New Haven
3978 Waterbury State Technical Coll.
[illegible] Wesleyan University
[illegible] Western Connecticut State Univ.
Yale University:
3213 —Continuing Undergraduates only
3987 —New Freshmen & Transfers only
[illegible] —School of Nursing

DELAWARE

0583 **Delaware State Scholarship Program**
5153 Delaware State College
Delaware Technical & Community Coll.:
5204 —Stanton
5201 —Terry
5154 —Wilmington
5255 Goldey-Beacom College
5811 University of Delaware
5894 Wesley College
5081 Widener University

DISTRICT OF COLUMBIA

5007 American University:
5007 —Washington College of Law
5104 Catholic University of America
5705 Corcoran School of Art
5240 Gallaudet University
5246 George Washington University:
5280 —School of Medicine
Georgetown University:
5244 —Undergraduate
5646 —Graduate School
5259 —School of Dentistry
5281 —School of Medicine
5297 Howard University:
5599 —College of Dentistry
5307 —College of Medicine
5610 Johns Hopkins University—Sch. of Advanced Intl. Studies
5422 Mount Vernon College
5622 Southeastern University
5796 Trinity College

FLORIDA

5789 American U. of Caribbean Sch. of Med.
5040 Art Institute of Fort Lauderdale
5053 Barry University
5061 Bethune-Cookman College
5045 Brevard Community College
3709 Briarcliffe College
Broward Community College:
5074 —Fort Lauderdale (Central)
5741 —Hollywood (South)
5735 —Pompano Beach (North)
5127 Central Florida Comm. College
5108 Chipola Junior College
5142 Clearwater Christian College
5437 College of Boca Raton
5173 D.G. Erwin Technical Center
5159 Daytona Beach Community Coll.
5223 Eckerd College
5191 Edison Community College
5182 Edward Waters College
5375 Elnor Smith School
Embry-Riddle Aeronautical University:
5980 —College of Continuing Ed.
5190 —Daytona Beach Campus
5235 Flagler College
5215 Florida A & M University
Florida Atlantic University:
5229 —Boca Raton Campus
5994 —Broward Campus
5216 Florida College
5232 Florida Comm. Coll., Jacksonville
5080 Florida Institute of Technology
3456 Florida Institute of Ultrasound
Florida International University:
5575 —North Miami
5206 —Tamiami Trail
5236 Florida Keys Community College
5217 Florida Memorial College
5218 Florida Southern College
5219 Florida State Univ., Tallahassee
5171 Fort Lauderdale College
5265 Garces Commercial College
5935 George Stone Area Voc. Tech. Center
5271 Gulf Coast Community College
5304 Hillsborough Community College
5327 International Fine Arts College
5337 Jackson Mem. Hosp. Sch. of Nrsg.
5331 Jacksonville University
5377 Lake City Community College
5376 Lake Sumter Community College
5463 Miami Christian College
5920 Miami Institute of Psychology
Miami-Dade Community College:
5624 —Homestead
5465 —Medical Center
5160 —North
5458 —South
5457 —Wolfson
National Education Center:
5712 —Bauder College
5791 —Tampa Tech. Institute
5506 New Coll. of the U. of So. Florida
5162 Northwood Institute
5514 Nova University:
5543 —Law School
5553 Palm Beach Atlantic College
5531 Palm Beach Community College
5562 Pasco Hernando Comm. College
5535 Pensacola Junior College
5548 Polk Community College
5573 Ringling School of Art & Design
Rollins College:
5572 —Day
7744 —Holt Sch./Brevard Campus
5641 Saint John's River Comm. Coll.
5638 Saint Leo College:
5759 —Military Education
5076 Saint Thomas University:
5724 —Bilingual Center
5662 Seminole Community College
5666 South Florida Community College
5621 Southeastern College of the Assemblies of God
7131 Southeastern Coll. of Pharm. Sci.
5679 Southern College
5630 Stetson University
5794 Tallahassee Community College
0726 Universidad Central Del Este
5233 University of Central Florida
5812 Univ. of Florida, Gainesville
5175 —College of Dentistry
5803 —College of Medicine
5754 —College of Veterinary Med.
5815 University of Miami
5773 —School of Law
5802 —School of Medicine
5490 University of North Florida
5828 University of South Florida
5819 University of Tampa
5833 University of West Florida
5869 Valencia Community College
9807 Ward Stone College
5893 Webber College

GEORGIA

5001 Abraham Baldwin Agri. College
5002 Agnes Scott College
5004 Albany State College
5042 American Coll. for Applied Arts
5009 Andrew College
5012 Armstrong State College
5429 Art Institute of Atlanta
5737 Athens Area Tech. Institute
5030 Atlanta Area Technical School
5029 Atlanta Christian College
5014 Atlanta College of Art
5725 Atlanta Metropolitan College
5336 Augusta College
5713 Augusta Technical Institute
5082 Bainbridge College
5070 Bauder College
5059 Berry College
5066 Brenau College
5068 Brewton-Parker College
5078 Brunswick College
5110 Clark Atlanta University
5145 Clayton State College
5123 Columbus College
6124 Covenant College
5167 Dalton College
5026 Darton College
5165 DeKalb College
5693 DeKalb Technical Institute
DeVry Institute of Technology:
5715 —Continuing Students
0371 —New/Transfer Students
5200 East Georgia College
5184 Emmanuel College
5187 Emory University
5237 Floyd College
5220 Fort Valley State College
5273 Gainesville College
5777 Georgia Baptist Coll. of Nursing
5252 Georgia College
5248 Georgia Institute of Technology
5249 Georgia Military College
5253 Georgia Southern University
5250 Georgia Southwestern College
5251 Georgia State Univ., Atlanta
5283 —College of Law
5256 Gordon College
5263 Grady Mem. Hosp. Sch. of Rad. Tech.
5168 Gwinnett Technical Institute
5384 Interdenominational Theological Seminary
5359 Kennesaw State College
5362 LaGrange College
5487 Lane School of Art
7578 Life College
5439 Macon College
5406 Medical College of Georgia
Mercer University:
5025 —Atlanta
5409 —Macon
5983 —School of Law
5471 —School of Medicine
5623 —Southern School of Pharmacy
5523 —University College
5411 Middle Georgia College
5415 Morehouse College
8277 Morehouse School of Medicine
5417 Morris Brown College
5497 North Georgia College
5507 North Georgia Tech. & Voc. Sch.
5521 Oglethorpe University
5186 Oxford College
5530 Paine College
5537 Piedmont College
5568 Reinhardt College
5636 Savannah Area Voc. Tech. School
5631 Savannah College of Art & Design
5609 Savannah State College
5616 Shorter College
5619 South Georgia College
5626 Southern College of Tech.
5628 Spelman College
5784 Thomas Technical Institute
5799 Toccoa Falls College
5798 Truett McConnell College
5813 University of Georgia, Athens
5855 Valdosta State College
5889 Waycross College
5895 Wesleyan College
5900 West Georgia College
5786 West Georgia Technical Institute
5990 Young Harris College

HAWAII

4106 Brigham Young University
4324 Cannon's International Business Coll.
4105 Chaminade Univ. of Honolulu
3964 Forest Inst. of Professional Psych.
0545 Hawaii Community Foundation
4351 Hawaii Loa College
4352 Hawaii Pacific University
0417 Kamehameha School
University of Hawaii:
4869 —Hilo
4350 —Honolulu Community College
4377 —Kapiolani Community College
4378 —Kauai Community College
4410 —Leeward Community College
4867 —Manoa
4510 —Maui Community College
4959 —West Oahu
4976 —Windward Community College

IDAHO

3319 Boise Bible College
4018 Boise State University
4060 College of Idaho
4114 College of Southern Idaho

4272	Eastern Idaho Technical College
4355	Idaho State University
4385	Lewis-Clark State College
4539	North Idaho College
4544	Northwest Nazarene College
4657	Ricks College
4843	University of Idaho, Moscow

ILLINOIS

1025	Augustana College
1027	Aurora University
1052	Barat College
1057	Belleville Area College
1483	Black Hawk College, Moline
1065	Blackburn College
1070	Bradley University
1318	Chicago-Kent College of Law
1118	Chicago State University
1083	College of DuPage
1983	College of Lake County
1130	College of Saint Francis
1135	Columbia College
1140	Concordia University
1165	DePaul University
1047	DeVry, Inc.
	DeVry Institute of Technology:
	Chicago
1171	—Continuing Students
0380	—New/Transfer Students
	Lombard
3204	—Continuing Students
0379	—New/Transfer Students
1316	Dr. William M. Scholl College of Podiatric Medicine
1199	Eastern Illinois University
1203	Elgin Community College
1204	Elmhurst College
1206	Eureka College
1263	Governors State University
1256	Greenville College
1089	Harold Washington College
1707	Illinois Benedictine College
1312	Illinois Central College
1315	Illinois College
1318	Illinois Institute of Technology
1319	Illinois State University
1397	Illinois Valley Comm. College
1320	Illinois Wesleyan University
0541	Institute of European/Asian Studies
3235	Introspect Youth Services, Inc.
1344	John Marshall Law School
1346	Joliet Junior College
1351	Judson College
1993	Keller Grad. Sch. of Management
1366	Kendall College
1385	Kishwaukee College
1372	Knox College
1392	Lake Forest College
1404	Lewis University
1406	Lincoln College
1412	Loyola University of Chicago:
1755	—Niles College
1426	—School of Dentistry
1420	—Stritch School of Medicine
1435	MacMurray College
1144	Malcolm X College
1456	McKendree College
1470	Millikin University
1484	Monmouth College
1220	Montay College
1486	Moody Bible Institute
1524	Moraine Valley Community Coll.
1567	National Coll. of Chiropractic
1551	National-Louis University
1555	North Central College
1556	North Park College & Theological Seminary
1090	Northeastern Illinois University
1559	Northern Illinois University
	Northwestern University:
3593	—Continuing and Returning Students
3852	—Evening Division
1565	—New Students
1573	Oakton Community College
1596	Olivet Nazarene University
1619	Parkland College
1621	Parks College of St. Louis Univ.
1077	Prairie State College
1630	Principia College
1645	Quincy College
1093	Richard J. Daley College
	Robert Morris College:
1662	—Chicago
1714	—Springfield
1674	Rock Valley College
1665	Rockford College
1666	Roosevelt University
1667	Rosary College
3262	Rush Univ.—St. Luke's Med. Ctr.
9626	Saint Anthony Hosp. Sch. of Nrsg.
3033	Saint Augustine College
1747	Saint Francis Hosp. Sch. of Nrsg.
9628	Saint John's Hospital Sch. of Nursing
1708	Saint Xavier College
1713	School of the Art Institute of Chicago
1717	Shimer College
1806	South Suburban College
1726	Southern Illinois Univ. at Carbondale
1759	Southern Illinois Univ. at Edwardsville
1749	State Community College
1820	Trinity Christian College
1810	Trinity College
1821	Triton College
1111	Truman College
1832	University of Chicago—The College (Undergraduate only)
1117	University of Health Sciences, Chicago Medical School
	University of Illinois:
1851	—Chicago Circle
1836	—Urbana-Champaign
1938	Waubonsee Community College
1900	Western Illinois University
1905	Wheaton College
1925	Wilbur Wright College
1932	William Rainey Harper College

INDIANA

1015	Ancilla College
1016	Anderson University
1051	Ball State University
1079	Bethel College
1073	Butler University
1776	Calumet College of St. Joseph
1166	DePauw University
1195	Earlham College
1228	Franklin College of Indiana
1251	Goshen College
1252	Grace College & Theological Seminary
1290	Hanover College
1325	Herron School of Art
1309	Holy Cross College
1304	Huntington College
3143	Indiana Business College
1323	Indiana Institute of Technology
1322	Indiana State Univ., Terre Haute
	Indiana-Purdue Universities:
1336	—Fort Wayne
1325	—Indianapolis
1361	—School of Dentistry
1285	—School of Medicine
	Indiana University:
1324	—Bloomington
7463	—School of Optometry
1338	—Gary
1337	—Kokomo
1314	—New Albany
1194	—Richmond
1339	—South Bend
	Indiana Vocational Technical College:
1649	—Anderson
1634	—Bloomington
1286	—Columbus
1277	—Evansville
1278	—Fort Wayne
1281	—Gary
1311	—Indianapolis
1329	—Kokomo
1282	—Lafayette
1334	—Madison
1279	—Muncie
1283	—Richmond
1273	—Sellersburg
1280	—South Bend
1284	—Terre Haute
1647	—Valparaiso
1446	Indiana Wesleyan University
1330	International Business College
1416	Lutheran Coll. of Health Professions
1440	Manchester College
1442	Marian College, Indianapolis
7378	Martin University
1585	Oakland City College
7570	Professional Careers Institute
	Purdue University:
1638	—Hammond
1631	—West Lafayette
1640	—Westville
1668	Rose-Hulman Inst. of Technology
1761	Saint Elizabeth Hosp. Sch. of Nrsg.
1693	Saint Francis College
1697	Saint Joseph's College
1704	Saint Mary-of-the-Woods College
1702	Saint Mary's College
1705	Saint Meinrad College
1227	Summit Christian College
1802	Taylor University
1811	Tri-State University
1208	University of Evansville
1321	University of Indianapolis
1841	University of Notre Dame
1335	University of Southern Indiana
1874	Valparaiso University
	Vincennes University:
7884	—Jasper
1877	—Vincennes
1895	Wabash College

IOWA

6757	American Institute of Business
6046	Briar Cliff College
6047	Buena Vista College
6087	Central College
6099	Clarke College
6101	Coe College
6119	Cornell College
6177	Des Moines Area Comm. Coll.
6171	Dordt College
6168	Drake University
6193	Ellsworth Community College
1215	Emmaus Bible College
6249	Graceland College
6251	Grand View College
6252	Grinnell College
6289	Hamilton Business College
6288	Hawkeye Inst. of Technology
	Indian Hills Community College:
6083	—Centerville
6312	—Ottumwa
6217	Iowa Central Comm. Coll., Ft. Dodge
	Iowa Lakes Community College:
6195	—Emmetsburg
6196	—Estherville
6301	Iowa Methodist Hosp. Sch. of Nrsg.
6306	Iowa State University, Ames
6308	Iowa Wesleyan College
	Iowa Western Community College:
6098	—Clarinda
6302	—Council Bluffs
6313	Jennie Edmundson Mem. Hosp. Sch.
6027	Kirkwood Community College
6370	Loras College
6375	Luther College
4497	Maharishi International Univ.
6394	Marshalltown Community Coll.
6415	Morningside College
6417	Mount Mercy College
6418	Mount Saint Clare College
6400	North Iowa Area Comm. Coll.
6490	Northwestern College
6593	Palmer College of Chiropractic
6617	Saint Ambrose University
6712	Scott Comm. Coll., Bettendorf
6650	Simpson College, Indianola
	Southeastern Community College:
6340	—Keokuk (South)
6048	—West Burlington (North)
6397	Teikyo Marycrest University
6936	Teikyo Westmar University
6869	University of Dubuque
6681	University of Iowa
6307	University of Northern Iowa
6162	Univ. of Osteopathic Medicine & Health Sciences
6885	Upper Iowa University
6094	Vennard College
6925	Waldorf College
6926	Wartburg College
6950	Western Iowa Tech Comm. Coll.
6943	William Penn College

KANSAS

6031	Baker University
6056	Benedictine College
6034	Bethany College
6335	Emporia State University
6262	Haskell Indian Junior College
6334	Kansas State University
6635	Saint Mary of the Plains College
6928	Washburn University
6884	Wichita State University

KENTUCKY

1098	Alice Lloyd College
1019	Asbury College
1023	Ashland Community College
1056	Bellarmine College
1060	Berea College
1071	Brescia College
1097	Campbellsville College
1109	Centre College
1145	Cumberland College
1200	Eastern Kentucky University
1211	Elizabethtown Community Coll.
1249	Georgetown College
1275	Hazard Community College
1307	Henderson Community College
1274	Hopkinsville Community College
8839	Institute of Electronic Tech.
1328	Jefferson Community College
1377	Kentucky Christian College
4161	Kentucky College of Business
1368	Kentucky State University
1369	Kentucky Wesleyan College
1402	Lees College
1474	Lexington Community College
1409	Lindsey Wilson College
1544	Madisonville Community College
1545	Maysville Community College
1532	Mid-Continent Baptist Bible College
1467	Midway College
1487	Morehead State University
1494	Murray State University
1574	Northern Kentucky University
1574	—Chase Law School
0710	Owensboro Community College
3196	Owensboro Jr. Coll. of Business
1620	Paducah Community College
7579	Phillips College
1625	Pikeville College
1650	Prestonsburg Community Coll.
1690	Saint Catharine College
1779	Somerset Community College
1770	Southeast Community College
1552	Spalding University
1741	Sue Bennett College
3250	Sullivan College
1876	Thomas More College
1808	Transylvania University
1825	Union College
	University of Kentucky:
1837	—Lexington
1888	—College of Dentistry
1968	—College of Medicine
1838	University of Louisville:
3814	—School of Dentistry
1967	—School of Medicine
1901	Western Kentucky University

LOUISIANA

0389	**Louisiana State Student Incentive Grant Program**
6082	Centenary College of Louisiana
6176	Delgado Community College
6164	Dillard University
6250	Grambling State University
6662	Jimmy Swaggart Bible College
	Louisiana State University:
6373	—Baton Rouge
6385	—New Orleans, Medical Ctr
6291	—Veterinary Medicine
6372	Louisiana Tech University
6374	Loyola University
6403	McNeese State University
6471	Newcomb Coll. of Tulane Univ.
6482	Northeast Louisiana University
6492	Northwestern State University
6002	Our Lady of Holy Cross College
6656	Southeastern Louisiana Univ.
	Southern University:
6663	—Baton Rouge
6711	—New Orleans
6832	Tulane University
6672	Univ. of Southwestern Louisiana
6975	Xavier University of Louisiana

MAINE

3015	Andover College
3074	Bangor Theological Seminary
3076	Bates College
3114	Beal College
3089	Bowdoin College
3269	Bridgton Academy
3700	Casco Bay College
3302	Central Maine Medical Center
3309	Central Maine Tech. College
3280	Colby College
3305	College of the Atlantic
3372	Eastern Maine Tech. College
3440	Husson College
3475	Kennebec Valley Tech. College
3505	Maine Maritime Academy
	Mid-State College:
3014	—Auburn
9244	—Augusta
3631	Northern Maine Tech. College
3701	Portland School of Art
3755	Saint Joseph's College
3535	Southern Maine Tech. College
3903	Thomas College
3925	Unity College
	University of Maine:
3929	—Augusta
3506	—Farmington
3393	—Fort Kent
3956	—Machias
3916	—Orono
3008	—Presque Isle
3751	University of New England:
3923	—College of Osteopathic Medicine
3156	—Graduate Division
3691	University of Southern Maine
3961	Washington County Tech. College
3960	Westbrook College

MARYLAND

0298	**Maryland State Scholarship Administration**
5028	Allegany Community College
5019	Anne Arundel Community Coll.
5401	Bowie State University
5684	Capitol Bible Sem. Washington Bible College
5101	Capitol College
5137	Catonsville Community College
5144	Charles County Community Coll.
5143	Chesapeake College
5114	Coll. of Notre Dame of Maryland
5890	Columbia Union College
5122	Coppin State College
5176	Dundalk Community College
5192	Essex Community College
5230	Frederick Community College
5402	Frostburg State University
5279	Garrett Community College
5257	Goucher College
5290	Hagerstown Junior College
5303	Harford Community College
5296	Hood College
5308	Howard Community College
	Johns Hopkins University:
5332	—Arts and Sciences
5532	—Peabody Institute
5354	—School of Continuing Studies
5353	—School of Engineering
5352	—Sch. of Hygiene & Pub. Health
5767	—School of Nursing
5370	Loyola College
5466	Maryland College of Art & Design
5399	Maryland Inst. College of Art
	Montgomery College:
5390	—Germantown
5440	—Rockville
5414	—Takoma Park
5416	Morgan State University
5421	Mount Saint Mary's College
5051	New Comm. Coll. of Baltimore
5545	Prince George's Community Coll.
5598	Saint John's College
5601	Saint Mary's College of Maryland
5403	Salisbury State College
5657	Sojourner Douglas College
5404	Towson State University
5834	Union Mem. Hosp. Sch. of Nrsg.
5810	University of Baltimore
	University of Maryland:
5757	—Baltimore City, All Campuses
5835	—Baltimore County
5814	—College Park
5400	—Eastern Shore
0988	—Munich Campus
5804	—University College
5856	Villa Julie College
5886	Washington College
5898	Western Maryland College

MASSACHUSETTS

3002	American International College
3003	Amherst College
3005	Anna Maria College
	Aquinas College:
3011	—Milton
3013	—Newton
3777	Art Institute of Boston
3009	Assumption College
3010	Atlantic Union College
3075	Babson College
3078	Bay Path College
3120	Bay State College
3787	Baystate Med. Ctr. Sch. of Nrsg.
	Becker College:
3482	—Leicester Campus
3079	—Worcester Campus
3096	Bentley College
3107	Berklee College of Music
3102	Berkshire Community College
8211	Blaine Hair and Beauty Schools
3467	Blue Hills Regional Tech. School
7108	Boston Architectural Center
3060	Boston Business School
3083	Boston College
3084	Boston Conservatory
3813	Boston Technical Center
	Boston University:
3087	—All Undergraduates
	Graduate Programs:
7100	—Grad. Coll. of Engineering
7423	—Grad. Law School
7485	—Grad. Metropolitan College
3088	—Grad. Programs—Sargent Coll.
3704	—Grad. Sch. for the Arts
3118	—Grad. Sch. of Arts & Sciences
8928	—Grad. Sch. of Dentistry
7148	—Grad. Sch. of Education
7313	—Grad. Sch. of Management
3116	—Grad. Sch. of Medicine
7094	—Grad. Sch. of Nursing
7101	—Grad. Sch. of Public Comm.
8930	—Grad. Sch. of Public Health
3101	—Grad. Sch. of Social Work
3122	—Grad. Sch. of Theology
7098	—Grad. Univ. Professors Prog.
3091	Bradford College
3092	Brandeis University:
3026	—Heller Graduate School
3517	Bridgewater State College
3110	Bristol Community College
3112	Brockton Hosp. Sch. of Nrsg.
8213	Broms Academy
3123	Bunker Hill Community College
3099	Burdett School
3097	Butera School of Art
3289	Cape Cod Community College
3279	Clark University
3282	College of the Holy Cross
3285	Curry College
3352	Dean Junior College
8510	Dudley Hall Career Institute
3371	East Coast Aero. Tech. School
3365	Eastern Nazarene College
3283	Elms College
3367	Emerson College
3368	Emmanuel College
3369	Endicott College
3375	Essex Agr. & Tech. Institute
3391	Fisher College, Boston
3518	Fitchburg State College
3392	Forsyth Sch. for Dent. Hygienists
3519	Framingham State College
3394	Franklin Institute of Boston
3417	Gordon College
3420	Greenfield Community College
3447	Hampshire College
	Harvard University:
3434	—Harvard-Radcliffe College
3380	—Continuing Education
3455	—Grad. School of Design
3428	—Grad. School of Education
3454	—J. F. Kennedy Sch. of Gov't
3457	—Law School
3450	—Medical School
3038	—School of Public Health
3449	Hellenic College
7412	Hickox School
3437	Holyoke Community College
8841	ITT Technical Institute
3473	Katharine Gibbs School
3696	Kinyon Campbell Business School
3287	Laboure College
3481	Lasell College
3488	Lawrence Mem. Hosp. Sch. of Nrsg.
8993	Learning Institute for Beauty Sciences
3483	Lesley College
8994	Lowell Academy
	Mansfield Beauty Schools:
9097	—Quincy Campus
9099	—Springfield Campus
9100	Marian Court Junior College
3294	Mass. Bay Comm. College
3516	Mass. College of Art
3512	Mass. Coll. of Pharm. & Allied Health
3514	Mass. Institute of Tech.
3515	Mass. Maritime Academy
3474	Mass. Sch. of Prof. Psychology
3549	Massasoit Community College
3525	Merrimack College
3554	Middlesex Community College
9101	Montserrat College of Art
3529	Mount Holyoke College
3530	Mount Ida College
3545	Mount Wachusett Comm. College
3676	New England Baptist Hosp. School of Nursing
3659	New England Conserv. of Music
3645	New England Sch. of Art & Design
3288	New England School of Law
9347	New England Sch. of Photography
3639	Newbury College
3666	Nichols College
3521	North Adams State College
9270	North Bennet Street Schools
3651	North Shore Community College
3641	Northeast Inst. of Indust. Tech.
3667	Northeastern University
3674	Northern Essex Community Coll.
3689	Pine Manor College
3713	Quincy Junior College
3714	Quinsigamond Community College
3723	Regis College
3322	Rob Roy Academy
3740	Roxbury Community College
3773	Saint Elizabeth's Hosp. Sch. of Nrsg.
3756	Saint John's School of Business
3295	Saint John's Seminary College
3522	Salem State College
3764	Salter School
3794	Sch. of the Museum of Fine Arts
3761	Simmons College
3795	Simon's Rock College of Bard
3762	Smith College
3799	Somerville Hosp. Sch. of Nrsg.
3786	Southeastern Mass. Univ.
3763	Springfield College
3791	Springfield Tech. Comm. College
3770	Stonehill College
3771	Suffolk University
3039	Travel School of America
	Tufts University:
3901	—Tufts/Jackson
8158	—Dental Medicine (Grad only)
3399	—Fletcher School (Grad only)
3896	—Medical School (Grad only)
3893	—Veterinary Medicine (Grad only)
3901	—All other applicants
3911	University of Lowell
	University of Massachusetts:
3917	—Amherst
3924	—Boston
3936	—Medical School
3957	Wellesley College
3958	Wentworth Inst. of Technology
3812	Wentworth Technical School
3962	Western New England College
3523	Westfield State College
3963	Wheaton College
3964	Wheelock College
3965	Williams College
3969	Worcester Polytechnic Institute
3524	Worcester State College
3976	Worcester Technical Institute
3970	Youville Hosp. Sch. of Nursing

MICHIGAN

1001	Adrian College
1007	Albion College
1010	Alma College
1011	Alpena Community College
1030	Andrews University
1018	Aquinas College
3851	Argubright Business College
	Baker College:
3237	—Flint
1616	—Mount Clemens
1527	—Muskegon
3299	—Owosso
1618	—Pontiac
1617	—Port Huron
1049	Bay de Noc Community College
1095	Calvin College
1035	Center for Creative Studies
1106	Central Michigan University
1225	Charles Stewart Mott Comm. Coll.
1123	Cleary College
1094	Concordia College
1156	Cranbrook Academy of Art
	Davenport College of Business:
1183	—Grand Rapids
7490	—Kalamazoo
7235	—Lansing
1816	Delta College
1787	D'Etre University
	Detroit College of Business:
1181	—Dearborn
1190	—Flint
1158	—Warren
1168	Detroit College of Law
1201	Eastern Michigan University
1222	Ferris State University
1261	Glen Oaks Community College
1246	GMI Engineering & Mgmt. Inst.
1250	Gogebic Community College
1265	Grace Bible College
1253	Grand Rapids Baptist Coll. & Sem.
1254	Grand Rapids Junior College
8706	Grand Rapids Sch. Bible & Music
1258	Grand Valley State University
3238	Great Lakes Junior College
1293	Henry Ford Community College
1294	Highland Park Community College
1295	Hillsdale College
1301	Hope College
1340	Jackson Community College
1952	Jordan College
1365	Kalamazoo College
1378	Kalamazoo Valley Comm. College
1375	Kellogg Community College
1376	Kendall College of Art & Design
1382	Kirtland Community College
4200	Krainz-Woods Acad. Med. Lab. Technicians
1137	Lake Michigan College
1421	Lake Superior State University
1414	Lansing Community College
1399	Lawrence Technological Univ.
1425	Lewis College of Business
1722	Macomb Community College
1437	Madonna University
1452	Marygrove College
1465	Michigan State University
1464	Michigan Technological Univ.
1523	Mid-Michigan Community Coll.
1514	Monroe County Comm. College
1522	Montcalm Community College
1495	Muskegon Community College
1569	North Central Michigan College
1560	Northern Michigan University
1584	Northwestern Michigan College
1568	Northwood Institute
	Oakland Community College:
3706	—Auburn Hills
3708	—Highland Lakes
3707	—Orchard Ridge
7267	—Southeast
1497	Oakland University
1595	Olivet College
1672	Reformed Bible College
1766	Saginaw Valley State Univ.
1628	Saint Clair County Comm. Coll.
1753	Saint Mary's College
1764	Schoolcraft College
1719	Siena Heights College
1783	Southwestern Michigan College
1732	Spring Arbor College
1743	Suomi College
1796	Thomas M. Cooley Law School
1835	University of Detroit Mercy
	University of Michigan:
1839	—Ann Arbor
5848	—School of Dentistry
6018	—School of Public Health
6050	—School of Social Work
1861	—Dearborn
1853	—Flint
1894	Walsh Coll. of Accounting & Business Administration
1935	Washtenaw Community College
1937	Wayne County Community Coll.
	Wayne State University:
1268	—Graduate School
1114	—Law School
1949	—Medical School
1898	—Undergraduate
1941	West Shore Community College
1902	Western Michigan University
1167	William Tyndale College

MINNESOTA

6014	Augsburg College
6676	Bemidji State University
6035	Bethany Lutheran College
6038	Bethel College
6081	Carleton College
6104	College of Saint Benedict
6105	College of Saint Catherine
6107	College of Saint Scholastica
6113	Concordia College, Moorhead
6114	Concordia College, St. Paul
6435	Dr. Martin Luther College
6253	Gustavus Adolphus College
6265	Hamline University
6390	Macalester College
6411	Minneapolis Coll. of Art & Design
6678	Moorhead State University
6505	North Central Bible College
6489	Northwestern College
6516	Northwestern Coll. of Chiropractic
6679	Saint Cloud State University
7829	Saint John's Preparatory School
6624	Saint John's University
6632	Saint Mary's College
6638	Saint Olaf College
6110	University of Saint Thomas

MISSISSIPPI

0320	State Inst. of Higher Learning Board of Trustees, Jackson
1008	Alcorn State University
1055	Belhaven College
1066	Blue Mountain College
1122	Clarke College
1126	Coahoma Community College
1142	Copiah-Lincoln Junior College
1163	Delta State University
1296	Hinds Community College
1299	Holmes Junior College
1341	Jackson State University
1347	Jones County Junior College
1471	Millsaps College
	Mississippi College:
1477	—Clinton Campus
1478	—MC-Clarke Campus
1455	—MC-School of Law
1742	Mississippi Delta Comm. College

1480	Mississippi State University
1481	Mississippi Univ. for Women
1482	Mississippi Valley State Univ.
1557	Northeast Mississippi Comm. Coll.
1562	Northwest Mississippi Comm. Coll.
1669	Rust College
1807	Tougaloo College
	University of Mississippi:
1879	—Medical Center
1840	—Oxford/University
1479	Univ. of Southern Mississippi, Hattiesburg
1858	Utica Junior College
1923	Wesley College
1907	William Carey College

MISSOURI

6085	Central Bible College
6089	Central Methodist College
6090	Central Missouri State University
6095	Columbia College
6123	Culver-Stockton College
	DeVry Institute of Technology:
6092	—Continuing Students
0347	—New Students
6169	Drury College
6198	Evangel College
6216	Fontbonne College
6269	Harris-Stowe State College
6330	Kansas City Art Institute
6366	Lincoln University
6367	Lindenwood College
6352	Logan College of Chiropractic
6399	Maryville College
6413	Missouri Valley College
6625	Missouri Western State College
6483	Northeast Missouri State Univ.
6488	Northwest Missouri State Univ.
6574	Park College
6611	Rockhurst College
6626	Saint Louis College of Pharmacy
	Saint Louis Community College:
6225	—Florissant Valley
6226	—Forest Park
6430	—Meramec
6629	Saint Louis University
6720	—School of Medicine
6655	Southeast Missouri State Univ.
6665	Southwest Missouri State Univ.
6683	Stephens College
	University of Missouri:
6875	—Columbia
6872	—Kansas City
6889	—St. Louis
6929	Washington University:
6952	—School of Medicine
6955	—Health Administration
6956	—Nurse Anesthesia
6958	—Occupational Therapy
6959	—Physical Therapy
6933	Webster University
6937	Westminster College
6941	William Jewell College
6944	William Woods College

MONTANA

4041	Carroll College
4058	College of Great Falls
4280	Dawson Community College
4298	Eastern Montana College
4317	Flathead Valley Community Coll.
4811	Fort Belknap College
4081	Miles Community College
4487	Montana College of Mineral Science & Technology
4488	Montana State Univ., Bozeman
4538	Northern Montana College
4660	Rocky Mountain College
4489	University of Montana, Missoula
4945	Western Montana College

NEBRASKA

6053	Bellevue College
6066	Bishop Clarkson College
6058	Bryan Memorial Hosp. Sch. of Nrsg.
	Central Community College:
6584	—Columbus
6346	—Grand Island
6136	—Hastings
6466	Chadron State College
6106	College of Saint Mary
6116	Concordia Teachers College
6121	Creighton University:
7177	—School of Dentistry
7220	—School of Law
6139	—School of Medicine
7221	—School of Pharmacy
6157	Dana College
6165	Doane College
6270	Hastings College
6401	McCook Community College
6458	Metropolitan Comm. College
6406	Midland Lutheran College
6503	Nebraska Christian College
6886	Nebraska Coll. of Tech. Agriculture
6470	Nebraska Wesleyan University
6473	Northeast Tech. Comm. College
6468	Peru State College
	Southeast Community College:
6491	—Beatrice
6349	—Lincoln
6502	—Milford
	University of Nebraska:
6467	—Kearney
6877	—Lincoln
6896	—Medical Center
6420	—Omaha
6469	Wayne State College

NEVADA

4757	Sierra Nevada College
4960	Truckee Meadows Comm. College
	University of Nevada:
4861	—Las Vegas
4844	—Reno
4972	Western Nevada Comm. College

NEW HAMPSHIRE

3694	Antioch Univ. New England
3310	Castle Junior College
3281	Colby-Sawyer College
3648	Daniel Webster College
3351	Dartmouth College
3395	Franklin Pierce College
3452	Hesser College, Manchester
3472	Keene State College
3657	New England College
3649	New Hampshire College
	New Hampshire Technical College:
3646	—Berlin
3684	—Claremont
3683	—Laconia
3660	—Manchester
3643	—Nashua
3661	—Stratham
3647	New Hampshire Technical Inst.
3670	Notre Dame College
3690	Plymouth State College
3728	Rivier College
3748	Saint Anselm College
3918	University of New Hampshire:
3912	—Manchester
3977	White Pines College

NEW JERSEY

2268	Ann May School of Nursing
2024	Atlantic Community College
2032	Bergen Community College
2838	Bergen County Tech. Inst.
2061	Berkeley Coll. of Bus., Garret Mt.
2044	Bloomfield College
2181	Brookdale Community College
2180	Burlington County College
2072	Caldwell College
2121	Camden County College
2080	Centenary College
2090	College of Saint Elizabeth
2124	County College of Morris
2118	Cumberland County College
	DeVry Technical Institute:
2203	—Continuing Students
0341	—New/Transfer Students
2193	Drew University
2239	Elizabeth Gen. Med. Ctr. Sch. of Nrsg.
2237	Essex County College
	Fairleigh Dickinson University:
2232	—Edward Williams College
2262	—Madison
2255	—Rutherford
2263	—Teaneck
2321	Felician College
2274	Georgian Court College
2515	Glassboro State College
2281	Gloucester County College
2304	Holy Name Hosp. Sch. of Nrsg.
2291	Hudson County Community Coll.
2516	Jersey City State College
8937	Katharine Gibbs Sch., Montclair
2517	Kean College of New Jersey
2444	Mercer County Community Coll.
2441	Middlesex County College
2416	Monmouth College
2520	Montclair State College
2427	Mountainside Hosp. Sch. of Nrsg.
2452	Muhlenburg Regional Medical Ctr.
2513	New Jersey Inst. of Technology
2630	Ocean County College
2694	Passaic Co. Community College
2672	Princeton University
2884	Ramapo College of New Jersey
2867	Raritan Valley Comm. College
2758	Rider College
	Rutgers The State University:
2737	—ALL New Brunswick Colleges
2082	—Camden Coll. of Arts and Sci.
2512	—Newark College of Arts and Sciences and Nursing
2875	Saint Francis Comm. Health Ctr., School of Nursing
2806	Saint Peter's College
2868	Salem Community College
2811	Seton Hall University:
2826	—School of Law
2819	Stevens Institute of Technology
2889	Stockton State College
2711	Sussex County Community College
2911	Teterboro Sch. of Aeronautics
2748	Thomas Edison State College
2519	Trenton State College
2921	Union County College
2578	Univ. of Medicine & Dentistry of N.J., Newark
2930	Upsala College
2722	Warren County Community College
2974	Westminster Choir College
2518	William Paterson College of N.J.

NEW MEXICO

4220	Albuquerque Tech. Voc. School
4290	Clovis Comm. College
4676	College of Santa Fe
4116	College of the Southwest
	Eastern New Mexico University:
4299	—Portales
4662	—Roswell
7469	Institute of American Indian Arts
4422	Luna Voc. Tech. School
4532	New Mexico Highlands Univ.
4533	New Mexico Institute of Mining & Tech.
4553	New Mexico Junior College
4534	New Mexico Military Institute
	New Mexico State University:
4012	—Alamogordo
4547	—Carlsbad
4781	—Dona Ana Branch Comm. Coll.
4552	—Grants
4531	—Las Cruces
4560	Northern New Mexico Comm. Coll.
4737	Saint John's College
4732	San Juan College
4816	Santa Fe Community College
9842	Southwestern Indian Polytechnic Institute
	University of New Mexico:
4845	—Albuquerque
4895	—Gallup
4809	—Los Alamos
4889	—School of Medicine
4810	—Valencia County
4535	Western New Mexico University

NEW YORK

2003	Adelphi University
2017	Adirondack Community College
2013	Albany College of Pharmacy
2522	Alfred State College
2005	Alfred University:
2060	—SUNY College of Ceramics
2603	American Acad. of Dramatic Arts
2498	American Musical and Dramatic Academy
2016	Arnot-Ogden Mem. Hosp. Sch. of Nrsg.
2037	Bard College
2038	Barnard College
3407	Bayley Seton Hosp. Physician Asst. Training Program
2064	Berkeley College
3339	BOCES Cattaraugus — Allegany School of Practical Nursing
5817	BOCES Rensselaer — School of Practical Nursing
7963	BOCES Steuben — Allegany College of Practical Nursing
2901	Boricua College
	Briarcliffe School:
2605	—Hicksville
7107	—Lynbrook
8275	—Patchogue
8343	—Evening Div.—All Campuses
2048	Broome Community College
	Bryant & Stratton Business Institute:
2018	—Albany
2056	—Buffalo
8239	—Rochester
2720	Bryant & Stratton Powelson Business Institute
2073	Canisius College
2010	Cayuga County Community Coll.
2078	Cazenovia College
2390	Circle in the Square Theatre Sch.
	Clarkson University:
2084	—Continuing and Returning Students
0707	—New Freshmen
2266	—New Transfers
2315	—The Clarkson School
2135	Clinton Community College
2086	Colgate University
2001	College of Aeronautics
2112	College of Insurance
2088	College of Mount Saint Vincent
	College of New Rochelle:
7193	—Graduate
7192	—New Resources
7191	—School of Nursing
2089	—Undergraduate
2091	College of Saint Rose
	Columbia University:
2116	—Columbia College
2120	—Graduate Sch. of Journalism
2094	—Sch. of Dental & Oral Surgery
2111	—School of Engr. and Applied Sci.
2095	—School of General Studies
2142	—School of Nursing
2905	—Teachers College
2138	Columbia-Greene Comm. Coll.
2134	Community Coll. of the Finger Lakes
2096	Concordia College
2097	Cooper Union
	Cornell University:
2098	—Endowed
2110	—Statutory
2106	Corning Community College
6787	Council on Intl. Ed. Exchange
2109	Crouse-Irving Mem. Hosp. Sch. of Nrsg.
3301	Culinary Institute of America
2762	Daemen College
2190	Dominican College of Blauvelt
2011	Dowling College
2198	Dutchess Community College
2197	D'Youville College
2224	Eastman School of Music
2226	Elmira College
	Erie Community College:
2213	—City Campus
2228	—North Campus
2211	—South Campus
2257	Fashion Institute of Technology
3142	Five Towns College
	Fordham University:
3031	—Lincoln Center Campus
2259	—Rose Hill Campus
2248	Friends World College
2254	Fulton-Montgomery Comm. Coll.
2272	Genesee Community College
8775	Grumman Data Systems Institute
2286	Hamilton College
2288	Hartwick College
2316	Herkimer County Comm. College
2334	Hilbert College
2294	Hobart College
2295	Hofstra University
2299	Houghton College
2300	Hudson Valley Community Coll.
	Iona College:
2324	—All Day & General Studies
9931	—All Weekend, Evening & Nursing
2325	Ithaca College
2335	Jamestown Community College
2345	Jefferson Community College
2339	Jewish Theol. Sem. of America
2340	Juilliard School
2350	Keuka College
2352	King's College
2380	Laboratory Institute of Mdse.
2366	Le Moyne College
2502	Long Island Beauty School
2377	Long Island Coll. Hosp. Sch. of Nursg.
	Long Island University:
2369	—Brooklyn
2070	—C.W. Post Campus, Brookville
2604	—C.W. Post Center, Brentwood
2853	—Southampton
2395	Manhattan College, Riverdale
2396	Manhattan School of Music
2397	Manhattanville College, Purchase
2398	Mannes College of Music
	Maria College of Albany:
2434	—Day
2564	—Evening and Weekend
7714	Marion S. Whalan School of Practical Nursing
2400	Marist College
2406	Marymount College, Tarrytown:
9812	—Weekend Program
2405	Marymount Manhattan College
2436	Mater Dei College
2422	Medaille College
2472	Memorial Hospital Sch. of Nursing
2409	Mercy College
	Millard Fillmore Hospital:
9779	—Radiology Technicians School
2456	—Registered Nursing School
2414	Mohawk Valley Community Coll.
2415	Molloy College
	Monroe College:
2463	—Bronx
2465	—New Rochelle
2429	Monroe Community College
2423	Mount Saint Mary College
2455	Mount Vernon Hosp. Sch. Nursing
2559	National Shakespeare Company Conservatory
2511	Nazareth College of Rochester
	New School for Social Research:
2521	—Graduate
9384	—Undergraduate
2169	New York Chiropractic College
2550	New York City Tech. College (Both Campuses)
2561	New York Inst. of Technology (All Campuses)
2552	New York Law School
9297	New York Sch. of Interior Design
	New York University:
2562	—Undergraduate & Grad. Schools
2581	—Graduate School of Medicine
2489	—Allied Health Education
2568	Niagara County Community Coll.
2558	Niagara University
2571	North Country Community Coll.
2560	Nyack College
2623	Olean Business Institute
2627	Onondaga Community College
2625	Orange County Community Coll.
	Pace University:
2635	—Undergraduate, New York City
2685	—Undergraduate, Pleasantville
2276	—Undergraduate, White Plains
2844	—School of Law, White Plains
2478	—Graduate, New York City
2546	—Graduate, Pleasantville
2644	—Graduate, White Plains
2638	Parsons School of Design
2640	Paul Smith's Coll. of Arts & Sci.
2031	Phillips Beth Israel Med. Ctr. School of Nursing
	Polytechnic University:
2668	—Brooklyn
2695	—Farmingdale (not SUNY—Farmingdale)
2669	Pratt Institute
2757	Rensselaer Polytechnic Institute
2759	Roberts Wesleyan College
2760	Rochester Inst. of Technology:
9926	—Natl. Tech. Inst. for the Deaf
9549	Rochester Sch. of Practical Nrsg.
2767	Rockland Community College
	Ross University:
2020	—Sch. of Medicine
2305	—Sch. of Veterinary Med.
2764	Russell Sage College
2343	Sage Jr. Coll. of Albany
2793	Saint Bonaventure University
	Saint Elizabeth Hospital:
2847	—School of Nursing
4192	—School of Radiography
2796	Saint Francis College
7762	Saint George Univ. Sch. of Med.
2798	Saint John Fisher College
2894	Saint John's Riverside Hosp., Cochran School of Nursing
2799	Saint John's University
	Saint Joseph's College:
2802	—Brooklyn
2841	—Patchogue
2825	Saint Joseph's Hosp. Health Ctr.
2805	Saint Lawrence University
9741	Saint Luke's Memorial Hospital Ctr. Diagnostic Radiography
2807	Saint Thomas Aquinas College
2749	Saint Vincent's School of Nursing
9732	Samaritan Hospital Sch. of Nrsg.
2810	Sarah Lawrence College
2879	Schenectady Co. Comm. College
2835	School of Visual Arts
2814	Siena College
2837	Sisters of Charity Hosp. Sch. of Nrsg.
2815	Skidmore College
	State University of New York:
2524	—Agr. & Tech. College at Cobleskill
2527	—Agr. & Tech. Coll. at Morrisville
2532	—Center at Albany
2535	—Center at Binghamton
2925	—Center at Buffalo/Amherst
2925	—Health Science Center
2548	—Center at Stony Brook
2891	—Health Science Center
7461	—Sch. of Dental Medicine
7462	—Sch. of Medicine
2537	—College at Brockport
2533	—College at Buffalo
2538	—College at Cortland
2539	—College at Fredonia
2540	—College at Geneseo
2541	—College at New Paltz
2866	—College at Old Westbury
2542	—College at Oneonta
2543	—College at Oswego
2544	—College at Plattsburgh
2545	—College at Potsdam
2878	—College at Purchase
2530	—College of Environmental Science & Forestry
2522	—College of Technology at Alfred
2523	—College of Technology at Canton
2525	—College of Technology at Delhi
2526	—College of Tech. at Farmingdale
2214	—Empire State College
2534	—Health Science Center at Brooklyn
2547	—Health Science Center at Syracuse
2896	—Institute of Tech. at Utica/Rome
2536	—Maritime College
8319	Stenotype Academy:
8860	—Evening Division
	Suffolk County Community College:
2849	—Brentwood, Western Campus
2846	—Riverhead, Eastern Campus
2827	—Selden, Ammerman Campus
2855	Sullivan County Comm. College
2823	Syracuse University:
7833	—College of Law
2913	Tobe-Coburn Sch. for Fashion Careers
2904	Tompkins-Cortland Comm. Coll.
2902	Touro College
2856	Trocaire College
2938	Ulster County Community Coll.
2920	Union College & University
2922	Union Theological Seminary
2067	United States Merchant Marine Academy
2928	University of Rochester
2932	Utica College of Syracuse Univ.
2956	Vassar College
2962	Villa Maria College
4152	Vocational Ed. & Extension Bd.
2966	Wagner College
2971	Wells College
2972	Westchester Community College
2978	William Smith College
7974	Word of Life Bible Institute
2765	Yeshiva Chofetz Chaim Radin
	Yeshiva University:
2990	—Undergraduate Division
2960	—Benjamin Cardozo Sch. of Law
2551	—Ferkauf Grad. Sch. of Psych.
2980	—Wurzweiler Sch. of Social Work

NORTH CAROLINA

5010	Appalachian State University
5052	Barber-Scotia College
5016	Barton College
5055	Belmont Abbey College
5058	Bennett College
5043	Blue Ridge Community College
5067	Brevard College
5300	Brunswick Community College
5100	Campbell University
5094	Cape Fear Community College
5103	Catawba College
5102	Central Piedmont Comm. College
5107	Chowan College
5134	Coastal Carolina Comm. College
5133	College of the Albemarle
5150	Davidson College
5156	Duke University:
5152	—School of Medicine
5180	East Carolina University:
5721	—School of Medicine
5629	Elizabeth City State University
5183	Elon College
5212	Fayetteville State University
5234	Forsyth Technical College
5242	Gardner-Webb College
5262	Gaston College
5260	Greensboro College
5261	Guilford College
5275	Guilford Technical Comm. College
5293	High Point College
5348	John Wesley College
5333	Johnson C. Smith University
5351	Johnston Community College
5364	Lees-McRae College
5365	Lenoir-Rhyne College
5367	Livingstone College
5369	Louisburg College
5395	Mars Hill College
5410	Meredith College
5426	Methodist College
5423	Montreat-Anderson College
5435	Mount Olive College
5003	North Carolina A & T State Univ.
5495	North Carolina Central University
0388	North Carolina Loans-Health Science/Mathematics
5512	North Carolina Sch. of the Arts
5496	North Carolina St. Univ., Raleigh
5501	North Carolina Wesleyan College
5533	Peace College
5534	Pembroke State University
5536	Pfeiffer College
5301	Phillips Jr. Coll.—Hardbarger
5556	Pitt Community College
5544	Presbyterian Hospital Sch. of Nrsg.
5560	Queens College
5588	Richmond Community College
5594	Robeson Community College
5582	Rockingham Community College
5214	Saint Andrews Presbyterian Coll.
5596	Saint Augustine's College
5600	Saint Mary's College
5607	Salem College
5612	Shaw University
5651	Southeastern Community College
5667	Southwestern Community College
5644	Stanly Community College
5656	Surry Community College
5785	Tri-County Community College
	University of North Carolina:
5013	—Asheville
5816	—Chapel Hill
5752	—Medicine
5105	—Charlotte
5913	—Greensboro
5907	—Wilmington
5885	Wake Forest University:
5084	—Bowman Gray Sch. of Med.
5937	—School of Law
5928	Wake Technical Comm. College
5886	Warren Wilson College
5926	Wayne Community College
5897	Western Carolina University
5921	Wilkes Community College
5908	Wingate College
5909	Winston-Salem State University

NORTH DAKOTA

0018	**North Dakota Student Financial Assistance Program**
6318	Jamestown College
6479	Minot State University
6474	North Dakota State University
6428	University of Mary
	University of North Dakota:
6878	—Grand Forks
6905	—Williston

OHIO

	Antioch University:
1017	—Antioch College
1652	—School for Adult and Experiential Learning
1002	Art Academy of Cincinnati
1021	Ashland University
1029	Athenaeum of Ohio
3203	Aultman Hospital Sch. of Nursing
1050	Baldwin-Wallace College
1072	Belmont Technical College
1067	Bluffton College
1069	Bowling Green State University, Bowling Green
8415	Bradford School
1099	Capital University:
1182	—Law & Grad. Center
	Case Western Reserve University:
1105	—All Undergraduates
1112	—Applied Social Sciences
0694	—Dentistry
1092	—Graduate Studies
1110	—Law
0687	—Management
1104	—Medicine
3264	—Nursing-Graduate
1151	Cedarville College
1086	Central Ohio Technical College
1107	Central State University
1091	Cincinnati Bible College and Seminary
1984	Cincinnati Technical College
1088	Circleville Bible College
1127	Clark State Comm. College
1152	Cleveland Institute of Art
1124	Cleveland Institute of Music
1221	Cleveland State University
1129	College of Mount Saint Joseph
1134	College of Wooster
1085	Columbus Coll. of Art & Design
1148	Columbus State Community Coll.
8417	Community Hospital of Springfield
	Cuyahoga Community College:
1978	—Eastern
1159	—Metropolitan
1985	—Western
1162	Defiance College
1164	Denison University
	DeVry Institute of Technology:
1606	—Continuing Students
0344	—New Students
1178	Dyke College
1191	Edison State Community College
1219	Fairview Gen. Hosp. Sch. of Nrsg.
1133	Franciscan Univ. of Steubenville
1229	Franklin University
1259	Good Samaritan Hosp. Sch. of Nrsg.
1292	Heidelberg College
1297	Hiram College
1822	Hocking Technical College
1333	Jefferson Technical College
1342	John Carroll University
	Kent State University:
1677	—Ashtabula
1814	—East Liverpool
1679	—Geauga
1367	—Kent
1684	—Salem
1678	—Stark
1381	—Trumbull
1682	—Tuscarawas
1370	Kenyon College
1386	Kettering College of Medical Arts
1391	Lake Erie College
1422	Lakeland Community College
1241	Lima Technical College
1417	Lorain County Community Coll.
1427	Lourdes College
1439	Malone College
9160	Mansfield Gen. Hosp. Sch. of Nrsg.
1444	Marietta College
9166	Mercy Hospital School of Nursing
1463	Miami Univ. (all campuses)
1502	Mount Carmel Sch./Coll. of Nrsg.
1492	Mount Union College
1531	Mount Vernon Nazarene College
1535	Muskingum Area Technical Coll.
1496	Muskingum College
1575	North Central Technical College
1235	Northwest Technical College
3260	Northwestern College
1566	Notre Dame College
1587	Oberlin College
4428	Ohio Diesel Technical Institute
1131	Ohio Dominican College
1591	Ohio Northern University
1592	Ohio State University
	Ohio University:
1593	—Athens
9437	—Belmont
9494	—Chillicothe
0219	—Ironton
9682	—Lancaster
9761	—Portsmouth
9909	—Zanesville
1594	Ohio Wesleyan University
1597	Otterbein College
1643	Owens Technical College
9443	Providence Hosp. Sch. of Nrsg.
9555	RETS Technical Center
1695	Saint Elizabeth Hosp. Med. Center
1698	Saint Thomas Hosp. Medical Center
3241	Saint Vincent Medical Center
1790	Shawnee State University
1720	Sinclair Community College
1752	Southern State Comm. College
1688	Stark Technical College
1817	Tiffin University
1966	Union Institute
1829	University of Akron
1833	University of Cincinnati
1834	University of Dayton
1223	University of Findlay
1663	University of Rio Grande
1845	University of Toledo
1847	Urbana University
1848	Ursuline College
1926	Walsh College
1897	Washington State Comm. College
1906	Wilberforce University
1909	Wilmington College
1922	Wittenberg University
1179	Wright State University:
1504	—School of Medicine
1965	Xavier University
1975	Youngstown State University

OKLAHOMA

6080	Cameron University
6117	Connors State College
6211	Flaming Rainbow University

6361	Langston University
6257	Mid-America Bible College
6484	Northeastern Oklahoma A & M Coll
6485	Northeastern State University
6543	Oklahoma City University
6557	Oklahoma Jr Coll of Bus and Tech
	Oral Roberts University
7492	—Graduate School
7493	—Medical School
6552	—Undergraduate Division
6579	Phillips University
6559	Rose State College
6036	Southern Nazarene University
6673	Southwestern Oklahoma St Univ
6749	Spartan School of Aeronautics
6839	Tulsa Junior College
6091	Univ of Central Oklahoma
6879	Univ of Oklahoma Norman
6902	—Health Science Center
6883	University of Tulsa

OREGON

8104	A Art College of Beauty
4231	Bassist College
8253	Beau Monde College of Hair Design
4025	Blue Mountain Comm College
4090	Central Oregon Comm College
4745	Chemeketa Community College
4111	Clackamas Community College
4089	Clatsop Community College
7433	College of Legal Arts
4093	Columbia Christian College
4079	Concordia College
4300	Eastern Oregon State College
4274	Eugene Bible College
4325	George Fox College
4407	Lane Community College
4384	Lewis and Clark College
4387	Linfield College
4333	—Linfield-Good Samaritan Nursing
4413	Linn-Benton Community College
4480	Marylhurst College
4508	Mount Hood Community College
4496	Multnomah School of the Bible
4543	Northwest Christian College
9377	Oregon City Beauty School
8985	Oregon Coll of Beauty & Barbering
4900	Oregon Health Sciences University
4587	Oregon Institute of Technology
4667	—Metro Campus (Portland)
4586	Oregon State University
4504	Pacific Northwest Coll of Art
4601	Pacific University
7708	Phagans Central Oregon Bty Coll
7706	Phagans School of Beauty
4617	Portland Community College
4610	Portland State University
4654	Reed College
4653	Rogue Community College
4702	Southern Oregon State College
4729	Southwestern Oregon Comm Coll
9767	Springfield College of Beauty
4825	Treasure Valley Comm College
4862	Umpqua Community College
4846	University of Oregon
4847	University of Portland
4595	Warner Pacific College
4956	Western Baptist College
4980	Western Business College
4968	Western Conservative Baptist Seminary
4585	Western Oregon State College
4979	Western States Chiroprac Coll
4954	Willamette University

PENNSYLVANIA

2004	Albright College
2006	Allegheny College
2021	Allentown College of Saint Francis de Sales
2431	Alvernia College
8117	Art Institute of Philadelphia
2029	Art Institute of Pittsburgh
2036	Baptist Bible College & Seminary
2039	Beaver College
2049	Bryn Mawr College
2050	Bucknell University
2066	Bucks County Community Coll
2071	Cabrini College
2647	California University of Pa
2421	Carlow College
2074	Carnegie Mellon University
2079	Cedar Crest College
2081	Chatham College
2082	Chestnut Hill College
2648	Cheyney University of Pa
2649	Clarion University of Pa
2087	College Misericordia
	Community College of Allegheny County
2156	—Allegheny County Campus
2122	—Boyce Campus
2025	—College Center North
2123	—South Campus
2682	Community Coll of Philadelphia
2100	Curtis Institute of Music
2125	Delaware County Comm College
2186	Dickinson College
2194	Drexel University
2196	Duquesne University
2650	East Stroudsburg Univ of Pa
2704	Eastern Baptist Theological Seminary
2220	Eastern College
2651	Edinboro University of Pa
2225	Elizabethtown College
2261	Franklin and Marshall College
2270	Gannon University
2273	Geneva College
2275	Gettysburg College
2277	Grove City College
2278	Gwynedd-Mercy College
	Hahnemann University
2285	—Graduate School
2306	—School of Health Sciences
2287	Harcum Junior College
2309	Harrisburg Area Comm College
2289	Haverford College
2297	Holy Family College
2320	Immaculata College
2341	Juniata College
2351	Keystone Junior College
2353	King's College
2653	Kutztown University of Pa
2379	La Roche College
2363	La Salle University
2361	Lafayette College
2364	Lebanon Valley College
2365	Lehigh University
2367	Lincoln Univ of the Comm of Pa
2654	Lock Haven University of Pa
2382	Luzerne County Comm College
2372	Lycoming College
2655	Mansfield University of Pa
2407	Marywood College
2410	Mercyhurst College
2411	Messiah College
2458	Methodist Hospital
2656	Millersville University of Pa
2445	Montgomery Co Community Coll
2417	Moore College of Art and Design
2418	Moravian College
2424	Muhlenberg College
2628	Neumann College
2567	Northeastern Christian Jr College
2573	Northampton Co Area Comm Coll
8662	Pennsylvania College of Straight Chiropractic
9266	Pennsylvania School of Art & Design
2660	Pennsylvania State University (All Campuses)
2661	Philadelphia College of Bible
2663	Phila Coll of Pharmacy & Sci
2666	Phila Coll of Textiles & Science
2674	Pierce Junior College
2718	Pinebrook Junior College
2676	Point Park College
2769	Robert Morris College
2763	Rosemont College
2797	Saint Francis College
2801	Saint Joseph's University
2808	Saint Vincent College
2812	Seton Hill College
2657	Shippensburg University of Pa
2658	Slippery Rock University of Pa
2817	Spring Garden College
2820	Susquehanna University
2821	Swarthmore College
	Temple University
9917	—Allied Health
2643	—Ambler
2917	—Dental Medical & Pharmacy
9940	—Graduate
7876	—Law
2912	—Tyler School of Art
2906	—Undergraduate
2910	Thiel College
2903	Thomas Jefferson University, Coll. of Allied Health Sciences
2926	University of Pennsylvania
	University of Pittsburgh
2935	—Bradford
2865	—College Work Study
2936	—Greensburg
2934	—Johnstown
2927	—Pittsburgh
2949	—School of Medicine
7466	— Semester at Sea
2937	—Titusville
2929	University of Scranton
2664	University of the Arts
2931	Ursinus College
2579	Valley Forge Christian College
2955	Valley Forge Military Jr. College
2959	Villanova University
2967	Washington and Jefferson Coll
2969	Waynesburg College
2975	Westminster College
2642	Widener University
2977	Wilkes University
2979	Wilson College
2991	York College of Pennsylvania

RHODE ISLAND

7053	Arthur Angelo School of Hair Design
	Brown University
3094	—Continuing Undergraduates only
3189	—New Freshmen & Transfers only
3095	Bryant College
	Community College of Rhode Island:
3738	—Lincoln
3733	—Warwick
3465	Johnson and Wales University
3476	Katharine Gibbs School
9315	New England Inst Tech. of R.I.
7882	Ocean State Business Institute
3693	Providence College
3724	Rhode Island College
3726	Rhode Island School of Design
7733	Rhode Island School of Photography
3729	Roger Williams College
3759	Salve Regina University
	Sawyer School
9829	—Pawtucket
7329	—Warwick
7774	School of Medical Sec Sciences
3919	University of Rhode Island
3954	Warwick Acad of Beauty Culture

SOUTH CAROLINA

0187	**South Carolina Tuition Grants Agency**
5037	Aiken Technical College
5008	Anderson College
5056	Benedict College
5065	Bob Jones University
5896	Central Wesleyan College
5079	Charleston Southern University
5095	Chesterfield-Marlboro Tech Coll
5108	Citadel, The
5109	Claflin College
5111	Clemson University
5112	Coker College
5113	College of Charleston
5117	Columbia College
5121	Converse College
5744	Denmark Tech College
5188	Erskine College
5207	Florence-Darlington Tech Coll
5442	Francis Marion College
5222	Furman University
5278	Greenville Technical College
5305	Horry-Georgetown Tech College
5456	Johnson & Wales University
5363	Lander College
5366	Limestone College
5584	Midlands Technical College
5418	Morris College
5483	Newberry College
5494	North Amer Inst of Aviation
5498	North Greenville College
5550	Piedmont Tech College
5540	Presbyterian College
9780	Sherman Coll of Straight Chiropractic
0061	Sirrine Scholarship Program
5618	South Carolina State College
5627	Spartanburg Methodist College
5668	Spartanburg Technical College
5789	Tri-County Technical College
5049	Trident Technical College
	University of South Carolina System:
5840	—Aiken
5845	—Beaufort
5837	—Coastal Carolina Coll., Conway
5818	—Columbia
5849	—Lancaster
5847	—Salkehatchie
5850	—Spartanburg
5821	—Sumter
5846	—Union
5863	Voorhees College
5910	Winthrop College
5912	Wofford College

SOUTH DAKOTA

0600	**South Dakota Student Incentive Grant Program**
6015	Augustana College
6042	Black Hills State University
6247	Dakota State University
6279	Huron University
6416	Mount Marty College
6652	So. Dakota Sch. of Mines & Tech
6653	South Dakota State University
6881	Univ of South Dakota, Vermillion

TENNESSEE

1028	Austin Peay State University
1058	Belmont University
1908	Bryan College
1102	Carson-Newman College
1121	Christian Brothers University
1161	David Lipscomb University
	Draughon's Junior College:
9057	—Clarksville
4194	—Knoxville
3136	—Memphis
3261	—Nashville
1198	East Tennessee State University
1224	Fisk University
1230	Freed-Hardeman University
1298	Hiwassee College
1345	Johnson Bible College
1371	King College
1373	Knoxville College
1394	Lambuth College
1395	Lane College
1401	Lee College
1403	LeMoyne-Owen College
1408	Lincoln Memorial University
1454	Maryville College
1459	Memphis State University
1466	Middle Tennessee State Univ
8859	Miller Motte Business College
1469	Milligan College
9318	Nashville Auto Diesel College
1648	Nashville State Tech Institute
1795	Pellissippi State Tech Comm College
1730	Rhodes College
4175	Rice College
1656	Roane State Comm College
1725	Southern College of Optometry
1727	Southern College of SDA
1803	Tennessee State University
1804	Tennessee Technological Univ
1805	Tennessee Wesleyan College
1809	Trevecca Nazarene College
1812	Tusculum College
1842	University of the South
	University of Tennessee:
1831	—Chattanooga
1843	—Knoxville
1844	—Martin
1850	—Memphis, Center for Health Sciences
1871	Vanderbilt University:
1724	—Medical Center Allied Health
1883	—School of Medicine
1881	Volunteer State Community College
1893	Walters State Community College

TEXAS

6001	Abilene Christian University
6005	Alvin Community College
6570	Ambassador College
6644	Angelo State University
6209	Art Institute of Dallas
8271	Art Institute of Houston
6016	Austin College
6759	Austin Community College
6068	Bauder Fashion College
8639	Baumberger Endowment
6059	Baylor College of Dentistry
6052	Baylor College of Medicine
6032	Baylor University
6032	—College of Nursing
6055	Bee County College
6043	Blinn College
6070	Brookhaven College
6148	Cedar Valley College
6133	College of the Mainland
6805	Collin County Comm Coll District
6849	Corpus Christi State University
6159	Dallas Baptist University
6160	Del Mar College
	DeVry Institute of Technology
6180	—Continuing Students
0372	—New/Transfer Students
6187	East Texas Baptist University
6188	East Texas St. Univ., Commerce
6201	Eastfield College
6199	El Centro College
6255	Galveston College
6254	Grayson County College
6268	Hardin-Simmons University
6282	Houston Baptist University
6296	Houston Community College
6280	Huston-Tillotson College
6303	Incarnate Word College
6319	Jarvis Christian College
6341	Kilgore College
	Lamar University
6360	—Beaumont
0441	—Orange
6589	—Port Arthur
6362	Laredo Junior College
6838	Laredo State University
6365	LeTourneau University
6369	Lon Morris College
6429	McLennan Community College
6402	McMurry University
6408	Midwestern State University
0401	Minnie Stevens Piper Fdtn
6438	Mountain View College
6508	North Harris Montgomery CC Dist.
6519	North Lake College
6499	Northwood Institute
6550	Our Lady of the Lake University of San Antonio
9873	Parker College of Chiropractic
6577	Paul Quinn College
6580	Prairie View A & M University
5609	Rice University
6607	Richland College
6619	Saint Edward's University
6637	Saint Mary's University
6642	Saint Philip's College
6643	Sam Houston State University
6722	San Antonio Art Institute
6645	San Antonio College
	San Jacinto College:
6694	—Central
6729	—North
6241	—South
6647	Schreiner College
6654	South Texas College of Law
6660	Southern Methodist University
6666	Southwest Texas Junior College
6667	Southwest Texas State Univ.
6671	Southwestern Adventist College
6705	Southwestern Christian College
6674	Southwestern University
6682	Stephen F. Austin State Univ.
6685	Sul Ross State University
6817	Tarleton State University
6834	Tarrant County Jr. Coll., Ft. Worth
6822	Texas A & I University
	Texas A & M University:
6003	—College Station
6835	—Galveston
6820	Texas Christian University
6821	Texas College
6848	Texas College of Osteopathic Medicine
6823	Texas Lutheran College
6824	Texas Southern University:
6797	—Law School
6825	Texas Southmost College
6328	Texas State Tech. Inst. Waco
6827	Texas Tech University
6828	Texas Wesleyan University
6826	Texas Woman's University
6831	Trinity University
6833	Tyler Junior College
6868	University of Dallas
	University of Houston
6916	—Clear Lake City
6922	—Downtown College
6870	—University Park
6917	—Victoria
6481	University of North Texas
6880	University of Saint Thomas
	University of Texas:
6013	—Arlington
6882	—Austin
6897	—Dallas
6829	—El Paso
6887	—Galveston Medical Branch
6888	—Houston Health Science Center
6619	—San Antonio
6908	—San Antonio Health Sci. Center
6686	—Southwestern Med. Center
6850	—Tyler
6915	Victoria College
6938	West Texas State University
6939	Wharton County Junior College
6940	Wiley College

UTAH

4019	Brigham Young University
4040	College of Eastern Utah
4283	Dixie College
4864	Salt Lake Comm. College
4727	Snow College
4092	Southern Utah University
4853	University of Utah
4857	Utah State University
4870	Utah Valley Comm. College
4941	Weber State University
4948	Westminster Coll. of Salt Lake City

VERMONT

3080	Bennington College
3044	Burlington College
3765	Castleton State College
3179	Center for Northern Studies
3291	Champlain College
3297	College of St. Joseph
3286	Community College of Vermont
3179	Fanny Allen Memorial School of Practical Nursing
3416	Goddard College
3418	Green Mountain College
3766	Johnson State College
3767	Lyndon State College
3509	Marlboro College
3526	Middlebury College
3560	—Bread Loaf School of English
3179	New England Culinary Institute
3669	Norwich University
3669	—The Russian School
3179	Putnam Memorial School of Practical Nursing
3757	Saint Michael's College
3788	School for International Training
3796	Southern Vermont College
3752	Sterling College
3179	Thompson Sch. for Practical Nrsg.
3900	Trinity College
3920	University of Vermont
3043	—Medical School
3669	Vermont College
3669	—Adult Degree Program
3669	—Graduate Program
3669	—Master of Art Therapy
3669	—Master of Fine Arts in Writing
3179	Vermont College of Cosmetology
3941	Vermont Technical College

VIRGINIA

5017	Averett College
5083	Blue Ridge Community College
5063	Bluefield College
5069	Bridgewater College
5141	Central Virginia Comm. College
5691	Christendom College
5128	Christopher Newport College
5124	Clinch Valley College
5115	College of William and Mary in Virginia
5099	Community Hosp. of Roanoke Valley Coll. of Health Sciences
5163	Danville Community College
5181	Eastern Mennonite College
5844	Eastern Shore Community Coll.
5185	Emory and Henry College
5213	Ferrum College
5827	George Mason University
5276	Germanna Community College
5291	Hampden-Sydney College
5292	Hampton University
5294	Hollins College
5771	J. Sargent Reynolds Comm. Coll.
5392	James Madison University
5342	John Tyler Community College
	Liberty University:
5385	—Main Campus
3499	—School of Lifelong Learning
5368	Longwood College
5381	Lord Fairfax Community College
5372	Lynchburg College
5397	Mary Baldwin College
5398	Mary Washington College
5405	Marymount University
1624	National College of Education
5513	New River Community College
5504	Norfolk Gen. Hosp. Sch. of Nrsg
5864	Norfolk State University
	Northern Virginia Community College
5510	—Alexandria
5515	—Annandale
5774	—Manassas
5775	—Sterling
5517	—Woodbridge
5126	Old Dominion University
5549	Patrick Henry Community Coll.
5561	Piedmont Virginia Comm. Coll.
5565	Radford University
5566	Randolph-Macon Coll., Ashland
5567	Randolph-Macon Woman's Coll., Lynchburg
	Rappahannock Community College
5590	—Glenns
5583	—Warsaw
5574	Richard Bland College
5580	Riverside Hosp. Sch. of Nrsg.
5571	Roanoke College
5604	Saint Paul's College
5613	Shenandoah University
5625	Southern Seminary College
5547	Southside Reg. Medical Center Sch. of Nursing
	Southside Virginia Community College
5660	—Christanna Campus
5669	—Keysville Campus
5659	Southwest Virginia Comm. Coll.
5634	Sweet Briar College
5793	Thomas Nelson Community Coll.
	Tidewater Community College
5707	—Chesapeake
5226	—Portsmouth
5787	—Virginia Beach
5569	University of Richmond
5820	University of Virginia
3685	—School of Law
5753	—School of Medicine
5570	Virginia Commonwealth Univ.
5827	Virginia Highlands Comm. Coll.
5857	Virginia Intermont College
5858	Virginia Military Institute
5859	Virginia Polytech. Inst. & St. U
5860	Virginia State University
5862	Virginia Union University
5867	Virginia Wesleyan College
5868	Virginia Western Comm. Coll.
5887	Washington and Lee University
5917	Wytheville Community College

WASHINGTON

7030	Antioch University
4805	Art Institute of Seattle
3170	Bastyr College
4029	Bellevue Community College
7077	Bellingham Technical School
4024	Big Bend Community College
4250	Bureau of Indian Affairs, Everett
4044	Central Washington University
4045	Centralia College
4042	City University
4055	Clark College
4147	Clover Park Voc. Tech. Institute
4077	Columbia Basin College
4801	Cornish College of the Arts
8556	Divers Institute of Technology
4301	Eastern Washington University
4307	Edmonds Community College
4303	Everett Community College
4292	Evergreen State College
4330	Gonzaga University
4332	Grays Harbor College
4337	Green River Community College
4344	Heritage College
4348	Highline Community College
9022	L H Bates Voc. Tech. Institute
9023	Lake Washington Voc. Tech. Inst.
4402	Lower Columbia College
4408	Lutheran Bible Institute of Seattle
4554	North Seattle Community College
4541	Northwest College of the Assemblies of God
4583	Olympic College
4597	Pacific Lutheran University
4615	Peninsula College
4369	Perry Technical Institute
4103	Pierce College
4618	Puget Sound Christian College
7749	Renton Voc. Tech. Institute
4674	Saint Martin's College
4741	Seattle Central Community Coll.
4694	Seattle Pacific University
4695	Seattle University
4738	Shoreline Community College
4699	Skagit Valley College
4578	South Puget Sound Comm. Coll.
4759	South Seattle Community College
4739	Spokane Community College
4752	Spokane Falls Community Coll.
4826	Tacoma Community College
7849	Trend College
4067	University of Puget Sound
7360	—School of Law
4854	Univ of Washington, Seattle
4940	Walla Walla Coll., College Place
4963	Walla Walla Community College
4705	Washington State University
4942	Wenatchee Valley College
4947	Western Washington University
4974	Whatcom Community College
4951	Whitman College
4953	Whitworth College
4993	Yakima Valley Comm. College

WEST VIRGINIA

5005	Alderson-Broaddus College
5034	Appalachian Bible College
5054	Beckley College
5060	Bethany College
5064	Bluefield State College
5120	Concord College
5151	Davis and Elkins College
5211	Fairmont State College
5254	Glenville State College
5268	Greenbrier Community Coll. Ctr.
5396	Marshall University
5519	Ohio Valley College
5529	Potomac State College
5635	Saint Mary's Hosp. Sch. of Nrsg.
5608	Salem-Teikyo University
5615	Shepherd College
	Southern West Virginia Comm. College
5445	—Logan
5447	—Williamson
5419	University of Charleston
5946	Webster College
5901	West Liberty State College
5902	West Virginia Inst. of Tech.
5942	West Virginia Northern Community College
5903	West Virginia State College
5932	West Virginia Univ. at Parkersburg
	West Virginia University
5904	—Main Campus
5949	—Health Science Center
5905	West Virginia Wesleyan College
5906	Wheeling Jesuit College

WISCONSIN

1012	Alverno College
1046	Bellin College of Nursing
1059	Beloit College
1043	Blackhawk Technical College
1100	Cardinal Stritch College
1101	Carroll College
1103	Carthage College
1139	Concordia University
1202	Edgewood College
1217	Fox Valley Technical College
	Gateway Technical College
1243	—Kenosha
1255	—Racine
3619	LaCrosse School of Beauty Culture
1393	Lakeland College
1398	Lawrence University
1536	Madison Area Tech. College
1443	Marian College of Fond du Lac
1448	Marquette University
1519	Medical College of Wisconsin
1475	Milwaukee Area Technical Coll.
3220	Milwaukee Coll. of Business
7590	Milwaukee Inst. of Art & Design
1476	Milwaukee Sch. of Engineering
	Moraine Park Technical College
1433	—Beaver Dam
1499	—Fond du Lac
4174	—West Bend
1490	Mount Mary College
1512	Mount Senario College
4190	Northeast Wisconsin Tech. College
1561	Northland College
1563	Northwestern College
1664	Ripon College
1706	Saint Norbert College
1300	Silver Lake College
1694	Southwest Wisconsin Tech. Coll.
	University of Wisconsin
1913	—Eau Claire
1859	—Green Bay
1914	—La Crosse
1846	—Madison
1473	—Milwaukee
1916	—Oshkosh
1860	—Parkside/Kenosha
1917	—Platteville
1918	—River Falls
1919	—Stevens Point
1740	—Stout
1920	—Superior
1921	—Whitewater
1999	University of Wisconsin Centers (All Two-Year Campuses)
1878	Viterbo College
1087	Western Wisconsin Tech. College
3618	Wisconsin College of Cosmetology
1513	Wisconsin Lutheran College
1903	Wisconsin School of Electronics

WYOMING

4043	Casper College
4115	Central Wyoming College
4700	Eastern Wyoming College
4415	Laramie County Comm. College
4542	Northwest Community College
4536	Sheridan College
4855	University of Wyoming
4957	Western Wyoming College
4977	Wyoming Technical Institute

List of fields to be used in answering questions 6, 15, 32, 34, and 35. If you do not see your particular area listed, please choose the category which is most closely related.

1. agroforestry
2. agronomy
3. animal behavior
4. anthropology
5. aquatic ecology
6. behavioral ecology
7. biogeochemistry
8. biological diversity
9. biology
10. bioremediation
11. biotechnology
12. botany
13. chemical ecology
14. chemistry
15. community ecology
16. conservation biology
17. ecological complexity
18. ecological economics
19. ecological modeling
20. ecosystem studies
21. ecosystem sustainability
22. entomology
23. environmental education
24. environmental engineering
25. environmental law
26. environmental policy
27. environmental/resource management
28. fisheries biology
29. forest ecology
30. geography
31. geology
32. geomorphology
33. global change
34. hydrology
35. impact assessment
36. invertebrate biology
37. landscape ecology
38. marine ecology
39. mathematics
40. microbiology
41. nutrient fluxes
42. oceanography
43. paleoecology
44. physics
45. physiological ecology
46. plant ecology
47. population biology
48. remote sensing
49. restoration ecology
50. risk assessment
51. soil science
52. statistical ecology
53. sustainable agriculture
54. systematics/taxonomy
55. Toxicology
56. trace gas fluxes
57. vertebrate biology
58. wetlands ecology
59. wildlife biology
60. zoology

List of forms of financial support to be used in answering question 6.

1. Teaching assistantship
2. Research assistantship
3. Fellowship
4. Worked way through school
5. Student loans
6. Family
6. Other (please specify in the space provided)

List of funding amounts to be used in answering question 34.

1. Less than $1,000
2. $1,000 - $4,999
3. $5,000 - $24,999
4. $25,000 - $49,999
5. $50,000 - $99,999
6. $100,000 - $250,000
7. Greater than $250,000

List of sources of financial support to be used in answering questions 6 and 34.

1. University
2. Foundation grant
3. National Science Foundation
4. U.S. Department of Agriculture
5. U.S. Department of Defense
6. U.S. Department of Energy
7. U.S. Department of the Interior
8. U.S.D.A. Forest Service
9. U.S. Environmental Protection Agency
10. National Aeronautics and Space Administration
11. National Oceanic and Atmospheric Administration
12. U.S. Agency for International Development
13. Man and the Biosphere Program
14. National Institutes of Health
15. Industry
16. State agencies
17. Other (please specify in the space provided)

List of other professional societies to be used in answering question 36.

1. American Anthropological Association
2. American Association for the Advancement of Science
3. American Bryological & Lichenological Society
4. American Congress on Surveying & Mapping
5. American Fern Society
6. American Fisheries Society
7. American Geophysical Union
8. American Institute of Biological Sciences
9. American Meteorological Society
10. American Ornithologists' Union
11. American Physiological Society
12. American Phytopathological Society
13. American Society of Agronomy
14. American Society of Animal Science
15. American Society for Gravitational & Space Biology
16. American Society of Ichthyologists and Herpetologists
17. American Society of Landscape Architects
18. American Society of Limnology & Oceanography
19. American Society of Mammalogists
20. American Society of Microbiology
21. American Society of Naturalists
22. American Society of Parasitologists
23. American Society for Photobiology
24. American Society for Photogrammetry & Remote Sensing
25. American Society of Plant Physiologists
26. American Society of Plant Taxonomists
27. American Society of Zoologists
28. American Water Resources Association
29. Animal Behavior Society
30. Association of American Geographers
31. Association of Ecosystem Research Centers
32. Association for Tropical Biology
33. Botanical Society of America
34. British Ecological Society
35. The Coastal Society
36. Entomological Society of America
37. Estuarine Research Federation
38. The Herpetologists' League
39. INTECOL
40. International Association for Vegetation Science
41. Mycological Society of America
42. North American Benthological Society
43. North American Lake Management Society
44. Organization for Tropical Studies
45. Phycological Society of America
46. Sigma Xi
47. Society of American Foresters
48. Society for Conservation Biology
49. Society of Environmental Toxicology & Chemistry
50. Society for Industrial Microbiology
51. Society for Mathematical Biology
52. Society of Nematologists
53. Society for Range Management
54. Society for the Study of Evolution
55. Society for the Study of Reptiles and Amphibians
56. Society of Systematic Biologists
57. Society for Wetland Scientists
58. Soil & Water Conservation Society
59. Soil Science Society of America
60. The Torrey Botanical Club
61. Water Pollution Control Federation
62. Weed Science Society of America
63. The Wildlife Society

APPENDIX B. TEXT OF THE 1987 SURVEY QUESTIONNAIRE

APPENDIX B. TEXT OF THE 1987 SURVEY QUESTIONNAIRE

The Ecological Society of America

Summer 1987

Dear Member:

The Ecological Society of America is a dynamic organization, and the last few years have witnessed some impressive changes. We have established a strong office in Washington, we have compiled data books and lists of members' areas of expertise, and all in all, we have matured into a society of immense scope. But while all of these changes are exciting, we of the membership committee think it crucial not to lose sight of ourselves as a society in the midst of these changes. We need to remember who we are and what we want the society to be and to make sure that the society's growth and development match the members' needs and goals.

Toward this end we are asking you to tell us who we are, where we're going, and where we need to be going. We are asking you to take time to fill out the enclosed membership survey. There is a lot of concern about the society and its membership, and we would like to give the membership a chance to express itself. The questions have been made as simple as possible, and nearly all of them have space for comments and opinions. We hope to use these answers to form a strong set of facts about who the membership is and what we want (and don't want) our society to be.

On a personal note, I know that the ESA is a heterogeneous group of very busy people. I also know that I have heard many of you voice strong opinions about the society and its directions. This is your chance to make your opinion heard. I want you to get involved in the society, even if it's only to the extent of filling out this survey. If you're happy with the society, tell us. If you're frustrated, tell us why. Please respond--take the time to get involved and tell us what we as a society are about, or should be about. Why not do it now--aren't you curious yourself about just who we are anyway? Think how gratified you'll feel if your "predications" are confirmed. Help yourself out--fill out the survey (we've even provided the envelopes).

I look forward to hearing from you.

Sincerely,

Joseph Travis

Joseph Travis
Chair, Membership Committee
Becky Brown
Barbara Peckarsky
Stuart Pickett
Louis Pitelka

REGARDING WHO WE ARE

A. Please circle your age group
- a) Less than 25
- b) 25 - 34
- c) 35 - 44
- d) 45 - 54
- e) 55 - 64
- f) 65 and above

B. Gender
- a) female
- b) male

C. Please circle the highest academic degree that you hold
- a) Bachelor's
- b) Master's
- c) Ph.D. or equivalent
- d) Other (please specify)______________________

D. Nature of the institution from which you received your highest degree :
- a) public
- b) private
- c) other (please specify)

E. Please give your current state of residence__________

F. Please circle the best description of your status as an ecologist :
- a) Undergraduate student
- b) Graduate student (seeking Master's)
- c) Graduate student (seeking Ph.D)
- d) Postdoctoral fellow
- e) Academic employment (faculty, research staff)
- f) Non-academic employment in ecology or environmental biology (consulting, management, conservation, etc.)
- g) Non-academic employment in an area unrelated to your training in ecology or environmental biology
- h) Not ecologist by profession but by avocation
- i) Other

G. Please indicate the best description of the nature of the institution or organization that employs you (for student members, indicate the nature of the institution that supports you while you pursue your degree):
- a) Unemployed
- b) Private business (i.e. a for-profit institution) that is directed toward ecological work (consulting firms, etc.)
- c) Private business whose primary function is not research or providing ecological services
- d) Governmental service, whether local or national, whether regulatory or scientific in orientation (e.g. soil conservation service, game or wildlife manage-

ment, agricultural extension, etc.)
e) Private institution not oriented to education (e.g. conservation organizations, foundations, etc.)
f) Educational institutions oriented primarily toward teaching
g) Educational institutions oriented primarily toward research or a mixture of teaching and research where research plays a more important role than teaching
h) Other____
____
____

H. Please indicate the type of membership you hold in the Society:
a) Associate member
b) Active member
c) Sustaining member
d) Family member
e) Student active member
f) Student sustaining member
g) Life member

I. Please indicate your sectional affiliation:
a) Animal behavior
b) Applied ecology
c) Aquatic ecology
d) International affairs
e) Paleoecology
f) Physiological ecology
g) Vegetation
h) No sectional affiliation

J. Please indicate your chapter affiliation
a) Central Rockies
b) Southeastern
c) Washington area
d) No chapter affiliation

K. Please indicate your present annual salary:
a) Below $10,000
b) $10,000 - $20,000
c) $21,000 - $30,000
d) $31,000 - $40,000
e) $41,000 - $50,000
f) Above $50,000
g) Unemployed

REGARDING WHAT KINDS OF ECOLOGISTS WE ARE

For each of the following 8 questions, use the following numerical codes in your answers. Some questions ask for only one number (e.g. a "best" description) but others may be answered by as many numbers as you feel appropriate.

1. Agronomic problems
2. Animal behavior
3. Plant systematics
4. Animal systematics
5. Plant physiological ecology
6. Animal physiological ecology
7. Plant population biology
8. Animal population biology
9. Population genetics
10. Biometry or statistical ecology
11. Forestry
12. Wildlife management
13. Resource management
14. Wetlands ecology
15. Ecosystem studies (empirical)
16. Ecosystem theory
17. Microbial ecology
18. Soil science
19. Range/grazing ecology
20. Landscape ecology
21. Theoretical population and community ecology
22. Community ecology
23. Biogeography
24. Chemical ecology
25. Pest management
26. Limnology (phytoplankton)
27. Limnology (zooplankton)
28. Paleobiology (paleontology and palynology)
29. Landscape architecture
30. Regional planning
31. Conservation biology
32. Habitat preservation and restoration
33. Environmental impact assessment
34. Human ecology
35. Meteorology, climate, global physical problems
36. Plant-animal interactions
37. Vegetation ecology or phytosociology
38. Environmental regulation (law, regulation, litigation)
39. Public policy with respect to environmental issues
40. Public education with respect to environmental issues

A. In which areas do you retain an interest (list as many as appropriate) ? ____________________

____

____

B. In which areas were you trained or are you being trained (training here defined as either at least 2 courses in the general subject or study under an active practitioner such as a major professor, supervisor, etc) List as many areas as are appropriate. ____________________

____

____

C. In which areas do you actually do work or conduct research or expend effort (as many as appropriate) ? ____________________

D. Which SINGLE area best describes the area in which you actually work ? ____________________

E. Which 5 areas would you most like to see represented in the Society's journals ? ____________________

F. Which 5 areas would you least like to see represented in the Society's journals ? ____________________

G. Which areas do you feel are overly represented in the Society's journals (i.e. areas you feel take up more pages than you feel they deserve; list as many as you feel are appropriate) ? ____________________

H. Which areas do you feel are under-represented in the Society's journals (same criterion; list as many as seem appropriate to you) ? ____________________

For each of the next 6 questions, please answer using the following numerical codes:

1. Marine invertebrates
2. Marine vertebrates
3. Marine plants
4. Freshwater phytoplankton
5. Freshwater zooplankton and macroinvertebrates
6. Freshwater vertebrates
7. Terrestrial lower plants
8. Terrestrial vascular plants
9. Terrestrial invertebrates not arthropods
10. Terrestrial arthropods
11. Terrestrial vertebrates
12. Estuarine animals
13. Marine or estuarine microbes
14. Freshwater microbes
15. Terrestrial microbes
16. Aquatic fungi
17. Terrestrial fungi
18. Equations
19. Plants in general
20. Animals in general
21. None of the above

I. Which of the above groups represent systems in which you retain an interest, even if you do not work with them directly (as many as apply) ? ____________________

J. In which of the above groups have you actually worked (as many as apply) ? ______________________________
____

K. Which of the above groups best describes your current work (work meaning research, teaching or consulting) ?
____
____

L. Which SINGLE group receives more of your active efforts than any other group ? __________________________

M. Which 5 groups do you think are overrepresented in the Society's journals ? __________________________

N. Which 5 groups do you think are underrepresented in the Society's journals ? __________________________

REGARDING CERTIFICATION

A. Are you a certified ecologist and if so, at what level ?
a) Not certified
b) Associate ecologist
c) Ecologist
d) Senior ecologist

B. Do you feel certification is a valuable attribute for an individual who works in the applied field ?
a) Yes
b) No

C. Do you feel that certification is an important function of the Society for its members who work in the applied field ?
a) Yes
b) No

D. Do you feel that certification is a valuable attribute for academic ecologists ?
a) Yes
b) No

REGARDING HOW WE VIEW THE SOCIETY AND HOW WE PARTICIPATE

A. Please indicate which alternative best describes your level of participation in the annual meeting of the Society (within the last 10 years):
a) Never attended
b) Have attended occasionally
c) Have attended intermittently
d) Have attended most years I have been a member
e) Have never missed this event

B. When you have NOT attended a meeting, which of the following best describes the major reason why :
a) Unappealing location
b) Too costly
c) Inconvenient timing
d) Dislike a large group atmosphere
e) Insufficient intellectual stimulation
f) Other (specify) ______________________________

C. When you do attend a meeting, which of these reasons best describes why you attend:
a) General enjoyment of large gatherings
b) Invited to present paper or poster
c) Social reasons (meet old friends, etc)
d) Hear papers and examine posters
e) Meet other workers in my area

D. What are the benefits of society membership to YOU (indicate as many as apply) ?
a) Receiving the journals
b) Attending the annual meetings
c) Belonging to a professional society
d) Access to the services of the society (career alternatives resources, guides to funding for research, etc)
e) Personal pride
f) Political considerations (it looks good in your place of employment)
g) Opportunity to purchase books at a discount
h) Opportunity for certification
i) Other (please specify)______________________________

E. Please rank the following as to which you think are the most important functions of the Society (rank 1 is the most important, rank 5 is least important).
a) Services of the Society to the members (as in d) in the previous question)
b) Services of the Society to the public (i.e. providing lists of expert witnesses, consultants, lobbying activities of the Washington Office, etc.)
c) Annual meetings
d) Publication of the journals
e) Certifying professional ecologists

F. Please specify any other functions that you think are as important or more important than the above 5 functions in question E. ______________________________

G. For you personally, what is the single most important factor in your decision to renew or cancel your membership every year ?

a) Last year's meeting
b) Economics and the cost of membership
c) Content of the Society's journals
d) Other activities of the Society
e) The orientation of the Society that you perceive is not what you would like it to be
f) Other ____

____

H. How many other professional societies do you belong to ?

____

I. How many professional journals besides the journals of the Society do you subscribe to ? ____________________

J. How do you view the cost of membership in the Society relative to that of other societies ?
cost of other societies or subscribing to other journals that you subscribe to ?

a) ESA is inexpensive
b) ESA is a bargain for what I receive
c) ESA is expensive, but the benefits are worth it
d) ESA is overly expensive
e) ESA is equal in comparison with other societies
f) Other (please specify)______________________________

____

K. Please indicate which alternative best indicates your feelings about your continued membership in the Society

a) I will never quit
b) I am likely to remain a member
c) I am likely to remain a member if I can afford to do so; economics are a major consideration
d) I am not sure that I will remain a member
e) I consider myself a marginal member and will give serious consideration to dropping out
f) I intend to leave the Society
g) Other (specify) ______________________________________

____

____

____

L. If you indicated d), e), or f) in the previous question please specify what factors are most responsible for bringing you to question the value of your membership in the Society.

____

____

____

____

M. If you indicated a) or b) in question K please specify what factors might eventually lead you to question your membership in the Society.

N. Many practicing ecologists do not belong to the Society. Based on your own impressions, why do you think that these ecologists are not members (as many as apply) ?

a) They are in more applied fields and the Society is not sufficiently oriented to their interests
b) They perceive the greatest benefit to membership to be the journals and the journals do not contain material sufficiently useful to them to justify membership
c) They cannot afford the annual dues
d) They do not consider themselves "ecologists" and so do not think ESA will be a beneficial society
e) They don't know of the ESA
f) Other ______________________________

O. Would you participate in an electronic mail system managed by ESA ?

a) Yes
b) No

APPENDIX C. TECHNICAL NOTES

A.1 SURVEY

In March 1992, the ESA mailed the survey to all 6,551 members, the total membership at that time[4]. Of that, 3,695 responses (56% of the membership) have been received and tabulated.

A.2 SAMPLING ERROR

The sample of responses from this survey is only one of a large number of possible samples of the same size that could have been received from the same mailing. The deviation of a sample estimate from the average of all possible samples is defined as sampling error. The sampling error (e) is calculated by solving the following equation for e:

$$N = \left(\frac{z}{e}\right)^2 (p)(1 - p)$$

thus:

$$e = \sqrt{\frac{z^2(p)(1 - p)}{N}}$$

where:

e = sampling error;
z = value for confidence level (z = 1.96 at the 95% confidence level and 2.576 at the 99% confidence level);
p = probability that survey will be returned (0.5 was used since it is the most conservative value that can be used);
N = number in the sample;

The sampling error is ± 1.6% at the 95% confidence level and ± 2.1% at the 99% confidence level.

A.3 ROUNDING

All percentages have been rounded to significant figures using the following rules:

1. A number is rounded "up" if the first insignificant figure is ≥ 5;
2. A number is rounded "down" if the first insignificant figure is < 5.

A.4 DATABASE/SOFTWARE CAPABILITIES

The data are stored in Paradox 3.5 database files. Simple tables were produced using SYSTAT 5.0, and more complex ones produced in Paradox. Paradox was also used to create summary datasets in some instances. The data are stored in both Paradox and dBase data files. Copies of the data files are located at the ESA Public Affairs Office and at the ESA archives at the University of Georgia in Athens, Georgia.

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[4] As of 6 October 1992 there were 6,838 members of the society.

APPENDIX D. SUMMARY OF FUNDING ACTIVITY BY FUNDING AGENCIES

Summary of funding activity by the National Science Foundation.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	170	66	62	42	51.6
Community ecology	137	54	44	39	55.1
Aquatic ecology	67	23	24	20	48.9
Physiological ecology	83	35	31	17	53.0
Conservation biology	37	6	15	16	28.6
Forest ecology	34	12	12	10	50.0
Marine ecology	70	35	24	11	59.3
Ecosystem studies	123	70	29	24	70.7
Plant ecology	69	19	30	20	38.8
Behavioral ecology	66	23	25	18	47.9
Wetlands ecology	11	3	6	2	33.3
Global change	26	10	9	7	52.6
Fisheries biology	4	1	2	1	33.3
Wildlife biology	2	1	1	0	50.0
Restoration ecology	19	1	8	10	11.1
Environmental/resource management	2	2	0	0	100.0
Landscape ecology	33	17	12	4	58.6
Biological diversity	16	5	6	5	45.5
Biogeochemistry	19	9	6	4	60.0
Ecological modeling	30	16	9	5	64.0
Entomology	7	1	5	1	16.7
Impact assessment	3	2	1	0	66.7
Nutrient fluxes	18	8	6	4	57.1
Chemical ecology	16	9	4	3	69.2
Sustainable agriculture	5	1	2	2	33.3
Environmental education	24	17	6	1	73.9
Paleoecology	21	14	4	3	77.8
Toxicology	5	2	2	1	50.0
Vertebrate biology	7	4	1	2	80.0
Systematics/taxonomy	21	9	8	4	52.9
Oceanography	20	9	10	1	47.4
Animal behavior	19	8	5	6	61.5
Remote sensing	2	0	0	2	
Botany	5	2	2	1	50.0
Trace gas fluxes	11	6	2	3	75.0
Invertebrate biology	6	2	3	1	40.0
Ecosystem sustainability	0	0	0	0	
Microbiology	7	2	4	1	33.3
Bioremediation	2	0	1	1	0.0
Risk assessment	1	0	1	0	0.0
Biology	5	4	0	1	100.0
Agronomy	3	2	0	1	100.0
Hydrology	0	0	0	0	
Agroforestry	2	1	1	0	50.0
Statistical ecology	3	2	0	1	100.0
Zoology	3	2	1	0	66.7
Evolution	7	3	3	1	50.0
Soil science	2	1	1	0	50.0
Geography	2	2	0	0	100.0
Environmental policy	1	1	0	0	100.0
Other	9	3	3	3	50.0
TOTAL	1255	525	431	299	54.9

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by universities.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	76	60	9	7	87.0
Community ecology	61	50	6	5	89.3
Aquatic ecology	37	31	5	1	86.1
Physiological ecology	37	26	8	3	76.5
Conservation biology	16	16	0	0	100.0
Forest ecology	32	21	4	7	84.0
Marine ecology	21	17	3	1	85.0
Ecosystem studies	17	12	4	1	75.0
Plant ecology	36	28	4	4	87.5
Behavioral ecology	38	30	5	3	85.7
Wetlands ecology	12	8	1	3	88.9
Global change	8	6	1	1	85.7
Fisheries biology	4	2	0	2	100.0
Wildlife biology	15	11	2	2	84.6
Restoration ecology	5	3	0	2	100.0
Environmental/resource management	4	2	1	1	66.7
Landscape ecology	11	8	1	2	88.9
Biological diversity	8	5	0	3	100.0
Biogeochemistry	3	2	0	1	100.0
Ecological modeling	5	4	1	0	80.0
Entomology	16	12	0	4	100.0
Impact assessment	0	0	0	0	
Nutrient fluxes	4	3	1	0	75.0
Chemical ecology	15	12	2	1	85.7
Sustainable agriculture	6	3	1	2	75.0
Environmental education	3	2	0	1	100.0
Paleoecology	3	3	0	0	100.0
Toxicology	1	1	0	0	100.0
Vertebrate biology	3	3	0	0	100.0
Systematics/taxonomy	7	7	0	0	100.0
Oceanography	0	0	0	0	
Animal behavior	8	8	0	0	100.0
Remote sensing	3	2	1	0	66.7
Botany	15	10	3	2	76.9
Trace gas fluxes	1	1	0	0	100.0
Invertebrate biology	4	3	1	0	75.0
Ecosystem sustainability	1	1	0	0	100.0
Microbiology	3	2	0	1	100.0
Bioremediation	0	0	0	0	
Risk assessment	0	0	0	0	
Biology	7	5	0	2	100.0
Agronomy	3	3	0	0	100.0
Hydrology	0	0	0	0	
Agroforestry	3	0	1	2	0.0
Statistical ecology	4	3	1	0	75.0
Zoology	2	1	1	0	50.0
Evolution	1	1	0	0	100.0
Soil science	1	0	0	1	
Geography	2	2	0	0	100.0
Environmental policy	0	0	0	0	
Other	4	4	0	0	100.0
TOTAL	566	434	67	65	86.6

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by state agencies.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	35	25	7	3	78.1
Community ecology	21	10	5	6	66.7
Aquatic ecology	41	35	4	2	89.7
Physiological ecology	8	5	2	1	71.4
Conservation biology	52	42	4	6	91.3
Forest ecology	17	11	3	3	78.6
Marine ecology	13	9	1	3	90.0
Ecosystem studies	14	8	3	3	72.7
Plant ecology	15	13	2	0	86.7
Behavioral ecology	6	4	2	0	66.7
Wetlands ecology	28	23	2	3	92.0
Global change	2	1	1	0	50.0
Fisheries biology	52	41	6	5	87.2
Wildlife biology	43	41	2	0	95.3
Restoration ecology	26	18	4	4	81.8
Environmental/resource management	26	22	1	3	95.7
Landscape ecology	6	3	2	1	60.0
Biological diversity	16	12	4	0	75.0
Biogeochemistry	3	1	0	2	100.0
Ecological modeling	3	3	0	0	100.0
Entomology	10	7	2	1	77.8
Impact assessment	13	8	2	3	80.0
Nutrient fluxes	8	4	2	2	66.7
Chemical ecology	2	1	1	0	50.0
Sustainable agriculture	6	3	3	0	50.0
Environmental education	6	4	1	1	80.0
Paleoecology	0	0	0	0	
Toxicology	6	3	1	2	75.0
Vertebrate biology	5	5	0	0	100.0
Systematics/taxonomy	3	3	0	0	100.0
Oceanography	0	0	0	0	
Animal behavior	1	1	0	0	100.0
Remote sensing	1	0	1	0	0.0
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	3	1	0	2	100.0
Ecosystem sustainability	2	2	0	0	100.0
Microbiology	1	1	0	0	100.0
Bioremediation	4	1	2	1	33.3
Risk assessment	1	0	0	1	
Biology	0	0	0	0	
Agronomy	1	1	0	0	100.0
Hydrology	2	2	0	0	100.0
Agroforestry	3	3	0	0	100.0
Statistical ecology	2	0	1	1	0.0
Zoology	0	0	0	0	
Evolution	1	1	0	0	100.0
Soil science	0	0	0	0	
Geography	1	0	0	1	
Environmental policy	3	3	0	0	100.0
Other	3	0	3	0	0.0
TOTAL	515	381	74	60	83.7

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by foundations.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	41	26	8	7	76.5
Community ecology	46	26	8	12	76.5
Aquatic ecology	25	13	8	4	61.9
Physiological ecology	27	14	6	7	70.0
Conservation biology	42	23	9	10	71.9
Forest ecology	18	12	3	3	80.0
Marine ecology	41	19	6	16	76.0
Ecosystem studies	9	7	2	0	77.8
Plant ecology	37	17	14	6	54.8
Behavioral ecology	32	18	11	3	62.1
Wetlands ecology	12	8	1	3	88.9
Global change	5	3	0	2	100.0
Fisheries biology	6	2	2	2	50.0
Wildlife biology	18	13	2	3	86.7
Restoration ecology	16	10	2	4	83.3
Environmental/resource management	12	11	1	0	91.7
Landscape ecology	5	2	3	0	40.0
Biological diversity	13	6	3	4	66.7
Biogeochemistry	8	8	0	0	100.0
Ecological modeling	2	2	0	0	100.0
Entomology	5	3	2	0	60.0
Impact assessment	2	1	1	0	50.0
Nutrient fluxes	4	0	2	2	0.0
Chemical ecology	2	2	0	0	100.0
Sustainable agriculture	6	4	1	1	80.0
Environmental education	4	2	1	1	66.7
Paleoecology	3	2	0	1	100.0
Toxicology	4	4	0	0	100.0
Vertebrate biology	8	5	1	2	83.3
Systematics/taxonomy	5	2	1	2	66.7
Oceanography	1	1	0	0	100.0
Animal behavior	6	2	3	1	40.0
Remote sensing	3	1	2	0	33.3
Botany	5	2	1	2	66.7
Trace gas fluxes	0	0	0	0	
Invertebrate biology	6	3	1	2	75.0
Ecosystem sustainability	2	0	0	2	
Microbiology	0	0	0	0	
Bioremediation	2	1	0	1	100.0
Risk assessment	0	0	0	0	
Biology	4	3	1	0	75.0
Agronomy	1	0	1	0	0.0
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	5	3	2	0	60.0
Evolution	0	0	0	0	
Soil science	1	1	0	0	100.0
Geography	1	0	1	0	0.0
Environmental policy	4	3	0	1	100.0
Other	9	5	3	1	62.5
TOTAL	508	290	113	105	72.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Department of the Interior.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	10	9	1	0	90.0
Community ecology	19	19	0	0	100.0
Aquatic ecology	23	19	1	3	95.0
Physiological ecology	8	3	4	1	42.9
Conservation biology	38	28	1	9	96.6
Forest ecology	7	4	0	3	100.0
Marine ecology	7	6	1	0	85.7
Ecosystem studies	7	5	2	0	71.4
Plant ecology	16	13	2	1	86.7
Behavioral ecology	4	3	1	0	75.0
Wetlands ecology	18	17	0	1	100.0
Global change	9	6	2	1	75.0
Fisheries biology	18	15	2	1	88.2
Wildlife biology	22	16	5	1	76.2
Restoration ecology	7	6	0	1	100.0
Environmental/resource management	16	14	1	1	93.3
Landscape ecology	8	7	1	0	87.5
Biological diversity	17	14	1	2	93.3
Biogeochemistry	8	6	0	2	100.0
Ecological modeling	5	3	1	1	75.0
Entomology	1	0	1	0	0.0
Impact assessment	9	7	1	1	87.5
Nutrient fluxes	0	0	0	0	
Chemical ecology	0	0	0	0	
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	7	5	0	2	100.0
Toxicology	5	5	0	0	100.0
Vertebrate biology	6	4	2	0	66.7
Systematics/taxonomy	5	4	0	1	100.0
Oceanography	0	0	0	0	
Animal behavior	2	2	0	0	100.0
Remote sensing	4	4	0	0	100.0
Botany	1	1	0	0	100.0
Trace gas fluxes	0	0	0	0	
Invertebrate biology	1	1	0	0	100.0
Ecosystem sustainability	0	0	0	0	
Microbiology	0	0	0	0	
Bioremediation	1	0	0	1	
Risk assessment	1	1	0	0	100.0
Biology	0	0	0	0	
Agronomy	0	0	0	0	
Hydrology	6	4	1	1	80.0
Agroforestry	1	1	0	0	100.0
Statistical ecology	1	1	0	0	100.0
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	3	2	0	1	100.0
TOTAL	321	255	31	35	89.2

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S.D.A. Forest Service.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	11	10	1	0	90.9
Community ecology	13	11	2	0	84.6
Aquatic ecology	5	3	1	1	75.0
Physiological ecology	10	4	5	1	44.4
Conservation biology	16	13	2	1	86.7
Forest ecology	39	29	7	3	80.6
Marine ecology	0	0	0	0	
Ecosystem studies	9	6	0	3	100.0
Plant ecology	3	2	1	0	66.7
Behavioral ecology	1	1	0	0	100.0
Wetlands ecology	6	4	0	2	100.0
Global change	17	10	6	1	62.5
Fisheries biology	5	3	2	0	60.0
Wildlife biology	14	12	1	1	92.3
Restoration ecology	5	5	0	0	100.0
Environmental/resource management	10	8	1	1	88.9
Landscape ecology	10	7	1	2	87.5
Biological diversity	5	3	1	1	75.0
Biogeochemistry	8	6	1	1	85.7
Ecological modeling	5	2	2	1	50.0
Entomology	3	2	0	1	100.0
Impact assessment	3	3	0	0	100.0
Nutrient fluxes	1	1	0	0	100.0
Chemical ecology	0	0	0	0	
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	1	1	0	0	100.0
Toxicology	1	1	0	0	100.0
Vertebrate biology	3	2	0	1	100.0
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	2	0	2	0	0.0
Botany	2	1	1	0	50.0
Trace gas fluxes	0	0	0	0	
Invertebrate biology	1	0	0	1	
Ecosystem sustainability	0	0	0	0	
Microbiology	0	0	0	0	
Bioremediation	1	0	1	0	0.0
Risk assessment	0	0	0	0	
Biology	0	0	0	0	
Agronomy	0	0	0	0	
Hydrology	3	3	0	0	100.0
Agroforestry	3	2	1	0	66.7
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	4	4	0	0	100.0
Geography	1	0	1	0	0.0
Environmental policy	1	1	0	0	100.0
Other	0	0	0	0	
TOTAL	222	160	40	22	80.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Department of Agriculture.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	26	10	9	7	52.6
Community ecology	16	6	5	5	54.5
Aquatic ecology	4	2	1	1	66.7
Physiological ecology	52	15	22	15	40.5
Conservation biology	5	3	1	1	75.0
Forest ecology	46	25	16	5	61.0
Marine ecology	1	1	0	0	100.0
Ecosystem studies	13	6	5	2	54.5
Plant ecology	17	6	7	4	46.2
Behavioral ecology	2	0	0	2	
Wetlands ecology	17	9	0	8	100.0
Global change	23	7	9	7	43.8
Fisheries biology	5	4	1	0	80.0
Wildlife biology	13	7	6	0	53.8
Restoration ecology	7	2	2	3	50.0
Environmental/resource management	8	4	1	3	80.0
Landscape ecology	6	3	1	2	75.0
Biological diversity	7	2	3	2	40.0
Biogeochemistry	11	2	5	4	28.6
Ecological modeling	4	1	1	2	50.0
Entomology	29	16	7	6	69.6
Impact assessment	1	0	0	1	
Nutrient fluxes	13	6	3	4	66.7
Chemical ecology	9	2	3	4	40.0
Sustainable agriculture	21	5	9	7	35.7
Environmental education	0	0	0	0	
Paleoecology	2	0	1	1	0.0
Toxicology	2	1	0	1	100.0
Vertebrate biology	1	1	0	0	100.0
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	0	0	0	0	
Botany	2	2	0	0	100.0
Trace gas fluxes	3	0	0	3	
Invertebrate biology	1	1	0	0	100.0
Ecosystem sustainability	4	4	0	0	100.0
Microbiology	3	1	2	0	33.3
Bioremediation	2	0	1	1	0.0
Risk assessment	0	0	0	0	
Biology	2	0	2	0	0.0
Agronomy	3	0	2	1	0.0
Hydrology	1	0	0	1	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	1	0	1	0	0.0
Soil science	4	3	1	0	75.0
Geography	1	0	1	0	0.0
Environmental policy	0	0	0	0	
Other	5	2	2	1	50.0
TOTAL	393	159	130	104	55.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Environmental Protection Agency.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	5	1	2	2	33.3
Community ecology	10	7	0	3	100.0
Aquatic ecology	25	13	3	9	81.3
Physiological ecology	15	6	5	4	54.5
Conservation biology	3	1	1	1	50.0
Forest ecology	5	3	1	1	75.0
Marine ecology	5	3	2	0	60.0
Ecosystem studies	20	9	10	1	47.4
Plant ecology	8	5	0	3	100.0
Behavioral ecology	0	0	0	0	
Wetlands ecology	19	10	5	4	66.7
Global change	23	10	4	9	71.4
Fisheries biology	3	2	1	0	66.7
Wildlife biology	1	1	0	0	100.0
Restoration ecology	7	3	1	3	75.0
Environmental/resource management	13	10	0	3	100.0
Landscape ecology	10	4	4	2	50.0
Biological diversity	6	2	2	2	50.0
Biogeochemistry	10	3	4	3	42.9
Ecological modeling	5	5	0	0	100.0
Entomology	0	0	0	0	
Impact assessment	11	9	1	1	90.0
Nutrient fluxes	5	3	0	2	100.0
Chemical ecology	0	0	0	0	
Sustainable agriculture	2	1	1	0	50.0
Environmental education	5	0	0	5	
Paleoecology	1	0	0	1	
Toxicology	12	8	1	3	88.9
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	2	1	1	0	50.0
Animal behavior	0	0	0	0	
Remote sensing	3	1	2	0	33.3
Botany	1	1	0	0	100.0
Trace gas fluxes	6	4	2	0	66.7
Invertebrate biology	1	1	0	0	100.0
Ecosystem sustainability	6	2	2	2	50.0
Microbiology	1	1	0	0	100.0
Bioremediation	3	1	0	2	100.0
Risk assessment	8	5	1	2	83.3
Biology	1	1	0	0	100.0
Agronomy	1	0	0	1	
Hydrology	3	1	0	2	100.0
Agroforestry	1	0	0	1	
Statistical ecology	4	2	2	0	50.0
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	1	1	0	0	100.0
Other	8	2	3	3	40.0
TOTAL	279	143	61	75	70.1

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Department of Agriculture.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	26	10	9	7	52.6
Community ecology	16	6	5	5	54.5
Aquatic ecology	4	2	1	1	66.7
Physiological ecology	52	15	22	15	40.5
Conservation biology	5	3	1	1	75.0
Forest ecology	46	25	16	5	61.0
Marine ecology	1	1	0	0	100.0
Ecosystem studies	13	6	5	2	54.5
Plant ecology	17	6	7	4	46.2
Behavioral ecology	2	0	0	2	
Wetlands ecology	17	9	0	8	100.0
Global change	23	7	9	7	43.8
Fisheries biology	5	4	1	0	80.0
Wildlife biology	13	7	6	0	53.8
Restoration ecology	7	2	2	3	50.0
Environmental/resource management	8	4	1	3	80.0
Landscape ecology	6	3	1	2	75.0
Biological diversity	7	2	3	2	40.0
Biogeochemistry	11	2	5	4	28.6
Ecological modeling	4	1	1	2	50.0
Entomology	29	16	7	6	69.6
Impact assessment	1	0	0	1	
Nutrient fluxes	13	6	3	4	66.7
Chemical ecology	9	2	3	4	40.0
Sustainable agriculture	21	5	9	7	35.7
Environmental education	0	0	0	0	
Paleoecology	2	0	1	1	0.0
Toxicology	2	1	0	1	100.0
Vertebrate biology	1	1	0	0	100.0
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	0	0	0	0	
Botany	2	2	0	0	100.0
Trace gas fluxes	3	0	0	3	
Invertebrate biology	1	1	0	0	100.0
Ecosystem sustainability	4	4	0	0	100.0
Microbiology	3	1	2	0	33.3
Bioremediation	2	0	1	1	0.0
Risk assessment	0	0	0	0	
Biology	2	0	2	0	0.0
Agronomy	3	0	2	1	0.0
Hydrology	1	0	0	1	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	1	0	1	0	0.0
Soil science	4	3	1	0	75.0
Geography	1	0	1	0	0.0
Environmental policy	0	0	0	0	
Other	5	2	2	1	50.0
TOTAL	393	159	130	104	55.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the National Oceanic and Atmospheric Administration.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	7	5	1	1	83.3
Community ecology	7	1	5	1	16.7
Aquatic ecology	18	11	4	3	73.3
Physiological ecology	7	4	2	1	66.7
Conservation biology	0	0	0	0	
Forest ecology	1	0	1	0	0.0
Marine ecology	48	32	9	7	78.0
Ecosystem studies	6	3	2	1	60.0
Plant ecology	0	0	0	0	
Behavioral ecology	0	0	0	0	
Wetlands ecology	16	6	5	5	54.5
Global change	9	5	2	2	71.4
Fisheries biology	38	20	15	3	57.1
Wildlife biology	0	0	0	0	
Restoration ecology	10	5	3	2	62.5
Environmental/resource management	8	4	2	2	66.7
Landscape ecology	1	0	0	1	
Biological diversity	0	0	0	0	
Biogeochemistry	5	3	0	2	100.0
Ecological modeling	2	2	0	0	100.0
Entomology	0	0	0	0	
Impact assessment	2	0	2	0	0.0
Nutrient fluxes	3	0	0	3	
Chemical ecology	4	4	0	0	100.0
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	3	1	2	0	33.3
Toxicology	0	0	0	0	
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	14	6	2	6	75.0
Animal behavior	0	0	0	0	
Remote sensing	2	2	0	0	100.0
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	3	3	0	0	100.0
Ecosystem sustainability	2	1	1	0	50.0
Microbiology	0	0	0	0	
Bioremediation	0	0	0	0	
Risk assessment	0	0	0	0	
Biology	0	0	0	0	
Agronomy	0	0	0	0	
Hydrology	1	0	1	0	0.0
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	1	0	1	0	0.0
Geography	1	1	0	0	100.0
Environmental policy	0	0	0	0	
Other	0	0	0	0	
TOTAL	219	119	60	40	66.5

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by industry.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	7	4	0	3	100.0
Community ecology	2	2	0	0	100.0
Aquatic ecology	6	5	1	0	83.3
Physiological ecology	7	2	4	1	33.3
Conservation biology	4	1	2	1	33.3
Forest ecology	6	5	1	0	83.3
Marine ecology	4	4	0	0	100.0
Ecosystem studies	2	2	0	0	100.0
Plant ecology	1	1	0	0	100.0
Behavioral ecology	1	1	0	0	100.0
Wetlands ecology	7	7	0	0	100.0
Global change	4	4	0	0	100.0
Fisheries biology	5	4	1	0	80.0
Wildlife biology	6	5	0	1	100.0
Restoration ecology	5	5	0	0	100.0
Environmental/resource management	5	4	0	1	100.0
Landscape ecology	2	2	0	0	100.0
Biological diversity	2	2	0	0	100.0
Biogeochemistry	4	4	0	0	100.0
Ecological modeling	3	1	1	1	50.0
Entomology	3	2	0	1	100.0
Impact assessment	16	13	3	0	81.3
Nutrient fluxes	1	1	0	0	100.0
Chemical ecology	1	1	0	0	100.0
Sustainable agriculture	1	0	1	0	0.0
Environmental education	0	0	0	0	
Paleoecology	1	1	0	0	100.0
Toxicology	4	2	0	2	100.0
Vertebrate biology	1	1	0	0	100.0
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	0	0	0	0	
Botany	1	0	1	0	0.0
Trace gas fluxes	0	0	0	0	
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	2	2	0	0	100.0
Microbiology	0	0	0	0	
Bioremediation	5	5	0	0	100.0
Risk assessment	2	2	0	0	100.0
Biology	0	0	0	0	
Agronomy	1	0	1	0	0.0
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	1	1	0	0	100.0
Environmental policy	0	0	0	0	
Other	1	1	0	0	100.0
TOTAL	124	97	16	11	85.8

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Department of Energy.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	2	1	0	1	100.0
Community ecology	2	2	0	0	100.0
Aquatic ecology	5	4	1	0	80.0
Physiological ecology	10	1	5	4	16.7
Conservation biology	0	0	0	0	
Forest ecology	5	0	0	5	
Marine ecology	1	1	0	0	100.0
Ecosystem studies	9	8	0	1	100.0
Plant ecology	2	2	0	0	100.0
Behavioral ecology	1	1	0	0	100.0
Wetlands ecology	0	0	0	0	
Global change	33	18	5	10	78.3
Fisheries biology	4	4	0	0	100.0
Wildlife biology	1	1	0	0	100.0
Restoration ecology	2	1	1	0	50.0
Environmental/resource management	1	0	1	0	0.0
Landscape ecology	8	7	0	1	100.0
Biological diversity	1	1	0	0	100.0
Biogeochemistry	4	1	2	1	33.3
Ecological modeling	6	3	0	3	100.0
Entomology	0	0	0	0	
Impact assessment	1	1	0	0	100.0
Nutrient fluxes	3	2	1	0	66.7
Chemical ecology	0	0	0	0	
Sustainable agriculture	0	0	0	0	
Environmental education	1	0	0	1	
Paleoecology	1	0	0	1	
Toxicology	0	0	0	0	
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	1	0	1	0	0.0
Animal behavior	0	0	0	0	
Remote sensing	2	1	1	0	50.0
Botany	0	0	0	0	
Trace gas fluxes	2	1	0	1	100.0
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	0	0	0	0	
Microbiology	3	1	1	1	50.0
Bioremediation	1	0	0	1	
Risk assessment	6	2	3	1	40.0
Biology	0	0	0	0	
Agronomy	0	0	0	0	
Hydrology	1	1	0	0	100.0
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	1	1	0	0	100.0
TOTAL	120	66	22	32	75.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the National Aeronautics and Space Administration.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	0	0	0	0	
Community ecology	2	2	0	0	100.0
Aquatic ecology	2	0	1	1	0.0
Physiological ecology	6	2	2	2	50.0
Conservation biology	0	0	0	0	
Forest ecology	6	2	1	3	66.7
Marine ecology	5	4	1	0	80.0
Ecosystem studies	11	6	2	3	75.0
Plant ecology	0	0	0	0	
Behavioral ecology	0	0	0	0	
Wetlands ecology	9	4	3	2	57.1
Global change	12	6	2	4	75.0
Fisheries biology	2	2	0	0	100.0
Wildlife biology	0	0	0	0	
Restoration ecology	1	1	0	0	100.0
Environmental/resource management	0	0	0	0	
Landscape ecology	2	1	1	0	50.0
Biological diversity	0	0	0	0	
Biogeochemistry	4	3	0	1	100.0
Ecological modeling	10	6	3	1	66.7
Entomology	0	0	0	0	
Impact assessment	0	0	0	0	
Nutrient fluxes	1	0	0	1	
Chemical ecology	0	0	0	0	
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	1	1	0	0	100.0
Toxicology	0	0	0	0	
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	11	6	5	0	54.5
Botany	0	0	0	0	
Trace gas fluxes	9	7	2	0	77.8
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	0	0	0	0	
Microbiology	1	0	1	0	0.0
Bioremediation	0	0	0	0	
Risk assessment	0	0	0	0	
Biology	0	0	0	0	
Agronomy	2	2	0	0	100.0
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	1	1	0	0	100.0
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	1	1	0	0	100.0
TOTAL	99	57	24	18	70.4

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Department of Defense.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	2	1	1	0	50.0
Community ecology	3	3	0	0	100.0
Aquatic ecology	5	4	0	1	100.0
Physiological ecology	1	1	0	0	100.0
Conservation biology	2	2	0	0	100.0
Forest ecology	3	3	0	0	100.0
Marine ecology	4	3	1	0	75.0
Ecosystem studies	2	2	0	0	100.0
Plant ecology	7	5	2	0	71.4
Behavioral ecology	1	1	0	0	100.0
Wetlands ecology	7	4	3	0	57.1
Global change	0	0	0	0	
Fisheries biology	0	0	0	0	
Wildlife biology	3	1	0	2	100.0
Restoration ecology	2	1	0	1	100.0
Environmental/resource management	4	3	1	0	75.0
Landscape ecology	0	0	0	0	
Biological diversity	0	0	0	0	
Biogeochemistry	0	0	0	0	
Ecological modeling	0	0	0	0	
Entomology	0	0	0	0	
Impact assessment	4	3	0	1	100.0
Nutrient fluxes	0	0	0	0	
Chemical ecology	1	1	0	0	100.0
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	0	0	0	0	
Toxicology	2	1	1	0	50.0
Vertebrate biology	4	2	0	2	100.0
Systematics/taxonomy	0	0	0	0	
Oceanography	7	6	1	0	85.7
Animal behavior	0	0	0	0	
Remote sensing	2	1	1	0	50.0
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	0	0	0	0	
Microbiology	2	2	0	0	100.0
Bioremediation	0	0	0	0	
Risk assessment	1	0	0	1	
Biology	0	0	0	0	
Agronomy	0	0	0	0	
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	0	0	0	0	
TOTAL	69	50	11	8	82.0

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Agency for International Development.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	3	1	0	2	100.0
Community ecology	5	1	1	3	50.0
Aquatic ecology	1	0	0	1	
Physiological ecology	1	1	0	0	100.0
Conservation biology	8	3	3	2	50.0
Forest ecology	2	0	2	0	0.0
Marine ecology	0	0	0	0	
Ecosystem studies	0	0	0	0	
Plant ecology	1	1	0	0	100.0
Behavioral ecology	0	0	0	0	
Wetlands ecology	1	0	0	1	
Global change	3	1	0	2	100.0
Fisheries biology	0	0	0	0	
Wildlife biology	0	0	0	0	
Restoration ecology	2	0	2	0	0.0
Environmental/resource management	1	0	0	1	
Landscape ecology	2	1	0	1	100.0
Biological diversity	3	1	1	1	50.0
Biogeochemistry	0	0	0	0	
Ecological modeling	0	0	0	0	
Entomology	0	0	0	0	
Impact assessment	2	2	0	0	100.0
Nutrient fluxes	1	0	0	1	
Chemical ecology	0	0	0	0	
Sustainable agriculture	4	1	1	2	50.0
Environmental education	3	3	0	0	100.0
Paleoecology	0	0	0	0	
Toxicology	0	0	0	0	
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	0	0	0	0	
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	2	0	1	1	0.0
Microbiology	0	0	0	0	
Bioremediation	0	0	0	0	
Risk assessment	0	0	0	0	
Biology	0	0	0	0	
Agronomy	2	0	0	2	
Hydrology	0	0	0	0	
Agroforestry	1	0	0	1	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	1	1	0	0	100.0
Other	0	0	0	0	
TOTAL	49	17	11	21	60.7

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the National Institutes of Health.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	6	2	3	1	40.0
Community ecology	0	0	0	0	
Aquatic ecology	0	0	0	0	
Physiological ecology	2	1	1	0	50.0
Conservation biology	0	0	0	0	
Forest ecology	0	0	0	0	
Marine ecology	0	0	0	0	
Ecosystem studies	0	0	0	0	
Plant ecology	0	0	0	0	
Behavioral ecology	4	2	2	0	50.0
Wetlands ecology	0	0	0	0	
Global change	0	0	0	0	
Fisheries biology	0	0	0	0	
Wildlife biology	0	0	0	0	
Restoration ecology	0	0	0	0	
Environmental/resource management	0	0	0	0	
Landscape ecology	0	0	0	0	
Biological diversity	0	0	0	0	
Biogeochemistry	0	0	0	0	
Ecological modeling	0	0	0	0	
Entomology	4	4	0	0	100.0
Impact assessment	0	0	0	0	
Nutrient fluxes	0	0	0	0	
Chemical ecology	3	1	2	0	33.3
Sustainable agriculture	0	0	0	0	
Environmental education	0	0	0	0	
Paleoecology	0	0	0	0	
Toxicology	1	1	0	0	100.0
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	1	1	0	0	100.0
Remote sensing	0	0	0	0	
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	0	0	0	0	
Microbiology	1	1	0	0	100.0
Bioremediation	2	2	0	0	100.0
Risk assessment	1	0	1	0	0.0
Biology	1	1	0	0	100.0
Agronomy	0	0	0	0	
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	1	1	0	0	100.0
TOTAL	27	17	9	1	65.4

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by the U.S. Man and the Biosphere Program.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	0	0	0	0	
Community ecology	5	2	3	0	40.0
Aquatic ecology	1	1	0	0	100.0
Physiological ecology	2	0	1	1	0.0
Conservation biology	3	0	2	1	0.0
Forest ecology	4	2	0	2	100.0
Marine ecology	2	0	2	0	0.0
Ecosystem studies	3	2	1	0	66.7
Plant ecology	2	0	0	2	
Behavioral ecology	0	0	0	0	
Wetlands ecology	2	0	2	0	0.0
Global change	1	0	1	0	0.0
Fisheries biology	0	0	0	0	
Wildlife biology	0	0	0	0	
Restoration ecology	2	0	2	0	0.0
Environmental/resource management	1	1	0	0	100.0
Landscape ecology	5	4	0	1	100.0
Biological diversity	3	3	0	0	100.0
Biogeochemistry	1	0	0	1	
Ecological modeling	1	0	1	0	0.0
Entomology	0	0	0	0	
Impact assessment	1	0	1	0	0.0
Nutrient fluxes	0	0	0	0	
Chemical ecology	0	0	0	0	
Sustainable agriculture	1	0	1	0	0.0
Environmental education	0	0	0	0	
Paleoecology	0	0	0	0	
Toxicology	0	0	0	0	
Vertebrate biology	0	0	0	0	
Systematics/taxonomy	0	0	0	0	
Oceanography	0	0	0	0	
Animal behavior	0	0	0	0	
Remote sensing	0	0	0	0	
Botany	0	0	0	0	
Trace gas fluxes	0	0	0	0	
Invertebrate biology	0	0	0	0	
Ecosystem sustainability	2	1	0	1	100.0
Microbiology	0	0	0	0	
Bioremediation	0	0	0	0	
Risk assessment	0	0	0	0	
Biology	0	0	0	0	
Agronomy	1	0	1	0	0.0
Hydrology	0	0	0	0	
Agroforestry	0	0	0	0	
Statistical ecology	0	0	0	0	
Zoology	0	0	0	0	
Evolution	0	0	0	0	
Soil science	0	0	0	0	
Geography	0	0	0	0	
Environmental policy	0	0	0	0	
Other	0	0	0	0	
TOTAL	43	16	18	9	47.1

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

Summary of funding activity by other sources.

Field	Number Filed	Number Funded	Number Not Funded	Number Pending	Funding Rate*
Population biology	74	48	13	13	78.7
Community ecology	64	43	8	13	84.3
Aquatic ecology	68	46	13	9	78.0
Physiological ecology	31	22	3	6	88.0
Conservation biology	64	43	8	13	84.3
Forest ecology	47	29	13	5	69.0
Marine ecology	50	26	9	15	74.3
Ecosystem studies	20	13	1	6	92.9
Plant ecology	48	35	8	5	81.4
Behavioral ecology	38	24	7	7	77.4
Wetlands ecology	27	20	3	4	87.0
Global change	16	8	2	6	80.0
Fisheries biology	29	19	5	5	79.2
Wildlife biology	29	20	6	3	76.9
Restoration ecology	27	20	6	1	76.9
Environmental/resource management	29	20	6	3	76.9
Landscape ecology	5	5	0	0	100.0
Biological diversity	13	8	2	3	80.0
Biogeochemistry	11	8	2	1	80.0
Ecological modeling	13	13	0	0	100.0
Entomology	10	9	1	0	90.0
Impact assessment	4	3	1	0	75.0
Nutrient fluxes	5	2	2	1	50.0
Chemical ecology	7	3	2	2	60.0
Sustainable agriculture	4	3	1	0	75.0
Environmental education	9	5	3	1	62.5
Paleoecology	11	6	2	3	75.0
Toxicology	10	8	2	0	80.0
Vertebrate biology	13	10	1	2	90.9
Systematics/taxonomy	7	3	3	1	50.0
Oceanography	0	0	0	0	
Animal behavior	5	3	1	1	75.0
Remote sensing	3	2	1	0	66.7
Botany	2	1	0	1	100.0
Trace gas fluxes	1	1	0	0	100.0
Invertebrate biology	6	4	1	1	80.0
Ecosystem sustainability	5	2	1	2	66.7
Microbiology	5	3	2	0	60.0
Bioremediation	1	0	1	0	0.0
Risk assessment	3	2	0	1	100.0
Biology	1	0	1	0	0.0
Agronomy	2	1	0	1	100.0
Hydrology	3	3	0	0	100.0
Agroforestry	4	3	0	1	100.0
Statistical ecology	2	1	0	1	100.0
Zoology	5	2	2	1	50.0
Evolution	5	1	2	2	33.3
Soil science	0	0	0	0	
Geography	3	2	0	1	100.0
Environmental policy	0	0	0	0	
Other	12	8	1	3	88.9
TOTAL	851	561	146	144	79.3

* Funding Success is defined as the number of grants funded divided by the sum of grants funded and grants not funded.

NOTES

ESA PROGRAMS AND PUBLICATIONS OF RELATED INTEREST:

- The planned introduction of genetically engineered organisms: ecological considerations and recommendations
- The Sustainable Biosphere Initiative: An ecological research agenda
- Ecotones: The role of landscape boundaries in the management and restoration of changing environments
- Evaluation of proposed revisions to the 1989 "Federal manual for identifying and delineating jurisdictional wetlands."
- Ecology Education for Children: A framework for excellence
- Ecology Education for Children: A handbook for ecologists
- Careers in Ecology

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